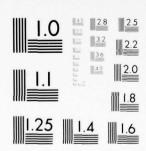


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power distribution network data
for input to
environmental impact statement
and system design

upper peninsula, michigan

SUB-CONTRACT NO. CSD-C-75-1048 (SDRL ITEM 8001)





WILLIAMS & WORKS

ENGINEERS / SURVEYORS / PLANNERS / GEOLOGISTS

GRAND RAPIDS, MICHIGAN 49506

CONTROL NO: 0309-B006-001



ELF COMMUNICATIONS SEAFARER PROGRAM

SITE SURVEY FINAL REPORT MICHIGAN REGION

POWER DISTRIBUTION NETWORK

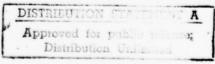
Contract No. N00039-75-C-0309 CDRL SEQUENCE NO. B006 March 5, 1976

Prepared for NAVAL ELECTRONIC SYSTEMS COMMAND Special Communications Project Office ELF COMMUNICATIONS DIVISION

by WILLIAMS & WORKS, INC. 611 Cascade West Parkway, S.E. Grand Rapids, Michigan 49506

Under Contract to GTE SYLVANIA, INC. 189 "B" Street Needham Heights, Massachusetts 02194





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TABLE OF CONTENTS

SECTION		Page
1.0	INTRODUCTION AND SUMMARY	1-1
1.1	Authority	1-1
1.2	Acknowledgement	1-1
1.3	Summary	1-2
2.0	DESCRIPTION AND TABULATION OF DATA	2-1
2.1	Upper Peninsula Power Company	2-4
2.1.1	Service Area	2-4
2.1.2	Outside Power Sources and Interconnections	2-4
2.1.3	Generating Plants	2-5
2.1.4	Transmission and Distribution System	2-6
2.1.5	Projected Time-Phased Growth - Proposed	
	Construction of New Facilities	2-6
2.1.6	System Right-of-way, Easements,	
	Land Use/Co-Use Arrangements	2-11
2.1.7	Construction Cost Experience	2-11
2.1.8	Grounding Practices and Insulator Data	2-11
2.1.9	Power Interruptions/Downtime	2-12
2.1.10	Rates and Charges	2-12
2.1.11	Miles of Power Lines Within the	
	Study Area	2-12
2.2	Wisconsin Michigan Power Company	2-16
2.2.1	Service Area	2-16
2.2.2	Outside Power Sources and Interconnections	2-16
2.2.3	Generating Plants	2-17
2.2.4	Transmission and Distribution System	2-18
2.2.5	Projected Time-Phased Growth and Posture	
	to Support Additional Facilities	2-20
2.2.6	System Right-of-Way, Easements	2-20
2.2.7	Construction Cost Experience	2-21 helf faction
2.2.8	Grounding Practices and Insulator Data	2-21
2.2.9	Power Interruptions/Downtime	2-22
		PAL AYAR ENGLER SPECIAL

TABLE OF CONTENTS (Cont'd)

SECTION		Page
2.2.1	O Rates and Charges	2-22
2.2.1	1 Miles of Power Lines	2-22
2.3	Marquette Board of Light and Power	2-25
2.3.1	Service Area	2-25
2.3.2	Outside Power Sources and Interconnections	2-25
2.3.3	Generating Plants	2-25
2.3.4	Transmission and Distribution System	2-25
2.3.5	Projected Time-Phased Growth and Proposed	
	Construction of New Facilities	2-27
2.3.6	System Right-of-Way, Easements,	
	Land Use/Co-Use Arrangements	2-27
2.3.7	Construction Cost Experience	2-27
2.3.8	Grounding Practices and Insulator Data	2-28
2.3.9	Power Interruptions/Downtime	2-28
2.3.1	O Rates and Charges	2-28
2.3.1	1 Miles of Power Lines	2-28
2.4	Ontonagon County Rural Electrification	
	Association	2-30
2.4.1	Service Area	2-30
2.4.2	Outside Power Sources and Interconnections	2-30
2.4.3	Transmission and Distribution System	2-30
2.4.4	Projected Time-Phased Growth and Proposed	
	Construction	2-30
2.4.5	System Right-of-Way, Easement	2-31
2.4.6	Construction Cost Experience	2-31
2.4.7	Grounding Practices and Insulator Data	2-31
2.4.8	Power Interruptions/Downtime	2-31
2.4.9	Rates and Charges	2-31
2.4.1	O Miles of Power Lines	2-31
2.5	Alger Delta Cooperative Electrical	
	Association	2-33
2.5.1	Service Area	2-33
2.5.2	Outside Power Sources and Interconnections	2-33

TABLE OF CONTENTS (Cont'd)

SECTION		Page
2.5.3	Transmission and Distribution System	2-33
2.5.4	Projected Time-Phased Growth and	
	Construction	2-33
2.5.5	System Right-of-Way, Easement	2-34
2.5.6	Construction Cost Experience	2-34
2.5.7	Grounding Practices and Insulator Data	2-34
2.5.8	Power Interruptions/Downtime	2-34
2.5.9	Rates and Charges	2-34
2.5.10	Miles of Power Lines	2-34
2.6	Crystal Falls Electric and Water Department	2-36
2.6.1	Service Area	2-36
2.6.2	Outside Power Sources and Interconnections	2-36
2.6.3	Generating Plants	2-36
2.6.4	Transmission and Distribution System	2-36
2.6.5	Grounding Practices and Insulator Data	2-37
2.6.6	Power Interruptions	2-37
2.6.7	Rates and Charges	2-37
2.6.8	Miles of Power Lines	2-37
2.7	K. I. Sawyer Air Force Base	2-38
2.7.1	Electrical Power System	2-38
2.7.1.1	Supply	2-38
2.7.1.2	Distribution	2-38
2.7.1.3	Street Lighting	2-39
2.7.1.4	Emergency Power Supply	2-39
3.0	ELECTRICAL FACILITIES LOCATION MAPS	
4.0	SUPPLEMENTAL DATA	
4.1	Power Companies' Financial Statement	
	Upper Peninsula Power Company	4-1
	Wisconsin Michigan Power Company	4-9
	Marquette Board of Light and Power	4-16

TABLE OF CONTENTS (Cont'd)

SECTION		Page
	Ontonagon County Rural Electrification	
	Association	4-24
	Alger Delta Cooperative Electrical	
	Association	4-26
4.2	Right-of-Way/Easement Data	
	Upper Peninsula Power Company	4-28
	Wisconsin Michigan Power Company	4-30
	Ontonagon County Rural Electrification	
	Association	4-50
4.3	Power Interruptions/Downtime Data	
	Wisconsin Michigan Power Company	4-51
	Marquette Board of Light and Power	4-53
	Ontonagon County Rural Electrification	
	Association	4-63
4.4	Rates and Charges	
	Upper Peninsula Power Company	4-64
	Wisconsin Michigan Power Company	4-72
	Marquette Board of Light and Power	4-84
	Ontonagon County Rural Electrification	
	Association	4-106
	Alger Delta Cooperative Electrical	
	Association	4-111
	Crystal Falls Electrical and Water	
	Department	4-112
	K. I. Sawyer Air Force Base	4-114

LIST OF TABLES

TABLE		Page
1.	Major Substations Data -	0.12
	Upper Peninsula Power Company	2-13
2.	Major Substations Data -	
	Wisconsin Michigan Power Company	2-23
3.	Major Substations Data -	
	Marquette County Board of	
	Light and Power	2-29
4.	Major Substations Data -	
	Ontonagon to Rural Electrification	
	Association	2-32
5.	Major Substations Data -	
	Alger Delta Cooperative Electrical	
	Association	2-35

section 1 introduction and summary

SECTION 1

INTRODUCTION AND SUMMARY

1.1 AUTHORITY

Williams & Works is under subcontract to GTE Sylvania, Inc., Communication Systems Division, to collect electrical utilities data defining the power generation and distribution network related to the SEAFARER PROGRAM within a specified area in Michigan's Upper Peninsula (Subcontract No. CSD-C-75-1048).

Notice to proceed was issued on November 24, 1975, with field data acquisition scheduled to be completed by December 26, 1975; a preliminary report to be submitted on December 29, 1975; and a final report to be submitted on February 23, 1976.

This report is presented as one part of GTE Sylvania's overall SITE SURVEY FINAL REPORT, MICHIGAN REGION. The data will be incorporated into the SEAFARER Environmental Impact Statement and utilized as a basis for determining the cost of mitigation measures necessary to minimize electrical interference between the antenna system and existing fence lines, pipelines and utilities.

1.2 ACKNOWLEDGEMENT

The assistance and support provided by representatives of GTE Sylvania and its team of associates is acknowledged as being instrumental in the successful completion of this report.

Each of the power companies contacted by Williams & Works was extremely cooperative. Their assistance is also acknowledged.

Our two consultants also contributed by arranging local meetings and participating in the data acquisition and interpretation phase. Both mer reside in Houghton, Michigan, and teach at Michigan Technological University. They are: Dennis O. Wiitanen, PhD, and Mr. Walter T. Anderson, P.E., head of the Electrical Engineering Department.

1.3 SUMMARY

The electrical study of the Upper Peninsula of Michigan was conducted in four parts: office preparation and study, field investigation and data collection, office analysis, and preparation of preliminary and final reports.

The SEAFARER Electrical Study Area includes Baraga, Marquette and Dickinson Counties and portions of Houghton, Alger, Iron, Menominee and Delta Counties encompassing approximately 6,000 square miles. Six power companies or co-ops serve the area.

The companies are interconnected to a grid network for exchanging electrical energy. Some are linked through normally closed tie switches and some are linked through normally open switches which are closed only in emergencies.

All incorporated areas with a population of 2,000 or more, plus a buffer zone of one mile, are excluded from detailed study although some transmission lines have been shown in these areas for the sake of continuity. Other areas excluded from the study are the Huron Mountain Club and the McCormich Experimental Forest. The map of the ELECTRICAL STUDY AFEA - SHEET 1 delineates the limits of the Electrical Study Area, exclusion areas, and power company service areas.

On the succeeding ELECTRICAL FACILITIES LOCATION MAPS (SECTION 3), existing power lines are shown for each company with an appropriate abbreviation along the line (i.e., UP - Upper Peninsula Power Company). The type of linework utilized to delineate the power line location also indicates the voltage and phase (see legend), while the number and type of individual wires carried on the poles are identified by notes along the lines.

Generating plants are located and identified on the appropriate maps and tabulated in the text with capacities, fuel and percent of utilization. Major substations are also shown on the maps and tabulated in detail in the text.

Right-of-way practices and procedures vary with each power company. Where available, widths, descriptions and typical right-of-way acquisition documents are included.

Construction cost experience is described where available; however, conditions vary widely and each company hesitates in releasing data which can be misleading due to weather, changing construction conditions, or actually outdated due to rapid price changes.

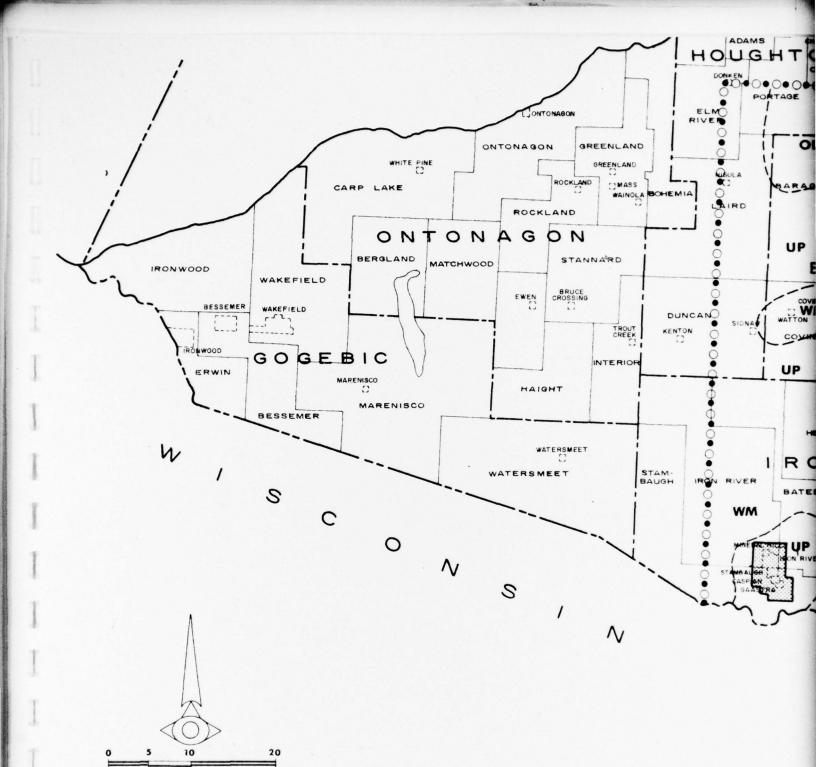
For each power company serving the area, interviews were scheduled beforehand; and a Williams & Works engineer visited the main office or field office and conducted a briefing with appropriate administrative or technical personnel. Data was reviewed and, where appropriate, copies requested for transfer to the home office. Each visit lasted from four hours to a number of days. A number of companies were visited more than once. In each case, a specific individual was selected as the permanent contact and a list prepared with information for contacting the individual in the future.

All power companies contacted were extremely helpful and provided the data requested as well as knowledgeable personnel to assist the Williams & Works representative. Letters of appreciation have been forwarded to each company on behalf of Williams & Works and GTE Sylvania.

The two largest power companies providing service in the Study Area are Wisconsin Michigan Power Company (WM) and Upper Peninsula Power Company (UP). Together, they generate approximately 484 MW (90%) of the electrical energy used within the Electrical Study Area. Marquette Board of Light and Power also has a generating capacity of 57.2 MW bringing the total energy generated and used within the area to approximately 541.2 MW. The remaining three companies purchase their electrical energy for resale primarily from WM or UP.

Wisconsin Michigan Power Company generates all Upper Peninsula electrical energy with hydro units while Upper Peninsula Power Company generates 92% with coal fired steam units, 2.6% with diesel oil fired units, and 5.4% with hydro units. Marquette Board of Light and Power, however, generates 66.4% with coal fired steam units, 27.1% with diesel oil fired units, and 6.5% with hydro units.

It is estimated that WM has approximately 2,264 miles and UP has 2,276 miles of transmission and distribution lines in the Electrical Study Area. The four other power companies within the area have 851 miles of lines bringing the total to approximately 5,391 miles - not including short lines or drops less than 300 feet in length.



PROJECT SEAFARER COLLECTION OF ELECTRICAL UTILITIES DATA

SUBCONTRACT NO. CSD-C-75-1048 FOR GTE, SYLVANIA INC.

ELECTRICAL STUDY AREA

MILES

Date 3/5/76 Sheet No.1



WILLIAMS & WORKS

Engineers Surveyors Planners Geologists 611 Cascade West Parkway Grand Rapids, Michigan 49506

EXC



section 2 description and tabulation of data

SECTION 2

DESCRIPTION AND TABULATION OF DATA

ELECTRICAL STUDY AREA MAP - SHEET 1 delineates the service area of the various power companies providing electrical utility service within the area. The six major power companies within this area are:

Upper Peninsula Power Company (UP)
Wisconsin Michigan Power Company (WM)
Marquette Board of Light and Power (MP)
Alger Delta Cooperative Electrical Association (AD)
Ontonagon County Rural Electrification Association (OR)
Crystal Falls Electrical and Water Department (CF)

There are several power companies serving customers outside the study area or within the excluded areas that could supply electrical energy for facilities within the study area. These include:

Norway Light Department
Norway, Michigan
Gladstone Board of Public Works
Gladstone, Michigan
L'Anse Board of Public Works
L'Anse, Michigan
Baraga Board of Public Works
Baraga, Michigan
Negaunee Board of Public Works
Negaunee, Michigan

The following list represents the power companies actually visited by Williams & Works representatives, the person contacted, and the dates of each visit. The first name listed is the designated contact.

Date of Visit and Williams & Works Representative

CRYSTAL FALLS ELECTRIC AND WATER DEPARTMENT
Mr. John Ondrus, Superintendent
401 Superior Street
Crystal Falls, Michigan 49920
906/875-6650

12-3-75 Leo Schaut

UPPER PENINSULA POWER COMPANY

Mr. Elio Argentati, Vice President of Operations
Mr. George Gildersleeve, Manager of Operations
and Engineering
616 Sheldon Avenue
Houghton, Michigan 49931
906/482-0220

12-3-75 Eugene Bouwkamp and Pat Gallo 2-20-76 Eugene Bouwkamp

WISCONSIN MICHIGAN POWER COMPANY

Mr. Otto R. Boll, P.E., Manager of Engineering
Mr. Al Alatalo, P.E., System Planning Engineer
Mr. Norb Schemm, Supervisor of Engineering Services
807 S. Oneida
Appleton, Wisconsin 54911
414/734-1411

12-2-75 12-3-75 Pat Gallo 2-18-76 Eugene Bouwkamp

MARQUETTE BOARD OF LIGHT AND POWER Mr. Wilbert Wiitala, Director

Mr. Ed Buska, Production Superintendent
Mr. Ted Nelson, P.E., Assistant Production
Superintendent
2200 Wright Street, N.W.
Marquette, Michigan 49855

12-2-75 Eugene Bouwkamp

ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION Mr. William Chabot, Manager

511 J. K. Paul Street Ontonagon, Michigan 49953 909/884-2510

906/228-6900

12-5-75 Eugene Bouwkamp

ALGER DELTA COOPERATIVE ELECTRICAL ASSOCIATION

Mr. Roy F. Hawkinson, Manager Mr. Edwin Englund, Superintendent 426 North Ninth Avenue Gladstone, Michigan 49837 906/425-2331 12-1-75 Leo Schaut

Williams & Works Representative 12-3-75 Leo Schaut Mr. David W. Schonke, P.E., Manager of Division 12-2-75 Pat Gallo 12-2-75 Leo Schaut

Date of Visit and

WISCONSIN MICHIGAN POWER COMPANY NORTHERN DIVISION Mr. Edward Koerschner, Manager 12-17-75 Mr. M. Thoburn Gibson, Supervisor of Field Engineering 12-18-75 Mr. Willard Miller, Line Superintendent 12-19-75 Mr. Robert Linssen, Supervisor of Engineering Leo Schaut Department 2-19-76 1401 South Carpenter Eugene Bouwkamp Iron Mountain, Michigan 49801 906/774-3000

CITY OF NORWAY LIGHT DEPARTMENT

915 Brown Street

700 North Adams

CITY OF GLADSTONE

City Hall

Norway, Michigan 49870 906/563-9641

Engineering

Green Bay, Wisconsin 54305 414/432-3311

Gladstone, Michigan 49837 906/425-2631

Mr. Junior Stanchina, Superintendent

WISCONSIN PUBLIC SERVICE CORPORATION

Mr. Howard W. Keeton, City Manager

L'ANSE BOARD OF PUBLIC WORKS Mr. Raymond Herrala, Manager of Public Works 12-4-75 L'Anse, Michigan 49946 Eugene Bouwkamp 906/524-6116 and Pat Gallo BARAGA BOARD OF PUBLIC WORKS

Mr. Joe Ross, Superintendent of Light and Power 12-4-75 Baraga, Michigan 49908 Eugene Bouwkamp 906/353-6237 and Pat Gallo

2.1 UPPER PENINSULA POWER COMPANY

The main office of the Upper Peninsula Power Company is located at 616 Sheldon Avenue, Houghton, Michigan 49931. The telephone number is (906) 482-0220. The information in this report was obtained from Mr. Elio Argentati, Vice President of Operations and Mr. George Gildersleeve, Manager of Operations and Engineering.

2.1.1 Service Area

The Upper Peninsula Power Company provides service to 95 communities and adjacent areas and furnishes energy for resale to four municipalities and three other electric utility companies in the Upper Peninsula. A large portion of the SEAFARER Study Area is served by the Upper Peninsula Power Company (refer to SHEET 1).

2.1.2 Outside Power Sources and Interconnections

Due to the large size of the service area, nearly all companies find it is economical in some cases to buy electrical energy at wholesale rates from other companies and distribute locally. The Upper Peninsula Power Company exchanges electrical energy with the:

> City of Marquette Wisconsin Michigan Power Company Cliffs Electric Service Company Edison Sault Electric Company

The Upper Peninsula Power Company also has interconnections for purposes of wholesaling electrical energy for resale purposes to:

City of Negaunee Board of Public Works
City of L'Anse Board of Public Works
City of Baraga Board of Public Works
Ontonagon County Rural Electrification Association
Wisconsin Michigan Power Company
Alger Delta Cooperative Electrical Association

2.1.3 Generating Plants

Within the study area, the Upper Peninsula Power Company generates 388,825 KW of energy at plants at the following locations:

	Name	Location	Capacity KW	Fue1	Utiliza- tion
	In the Area				
1/	J. H. Warden Station Prickett Hydro Station Ishpeming Station Ishpeming Station (CES Co) Hoist Hydro Station (CES Co)	L'Anse Baraga Co. Ishpeming Ishpeming Dear River	15,625 2,200 7,500 10,000	Coal Water Coal Diesel	88% 75% 92% 80%
	McClure Hydro Station	Storage	4,400	Water	75%
	(CES Co)	Marquette Twp.	8,000	Water	75%
2/	Cataract Hydro Station (CES Co) Carp Hydro Station (CES Co) Presque Isle Station (UPG Co)	Forsyth Twp. Marquette Marquette TOTAL:	2,000 4,400 334,700 388,825	Water Water Coal	75% 75% 89%
	Outside the Area	TOTAL.	300,023		
	Escanaba Station AuTrain Hydro Station	Escanaba	25,300	Coal	87%
	(CES Co) Portage Station	AuTrain Adams Twp.	896 55,000	Water Fuel	75%
	Dodgeville Station	Dodgeville	9,080	0il Fuel 0il	80%
	Victoria Station	Victoria Dam	12,000	Water	75%
		TOTAL:	102,276		

^{1/ (}CES Co) Owned by Cliffs Electric Service Co.

^{2/ (}UPG Co) Upper Peninsula Generating Co. (Owned jointly by UPP Co and CES Co)

2.1.4 Transmission and Distribution System

The Upper Peninsula Power Company has a widespread system utilizing 138 KV, 69 KV and 33 KV transmission voltages. ONE-LINE DIAGRAMS of these systems are included on the 138 KV System, 69 KV System-Eastern Division, 69 KV System-Western Division, and 33 KV System-Marquette County.

Data on major substations is included in TABLE 1. The general location of generating plants, substations, and transmission lines are shown on the ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. Detailed location by section, township and range, actual location of the right-of-way, pole or tower number, etc., are shown on separate maps prepared by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report, but prints have been supplied to GTE Sylvania where they are filed.

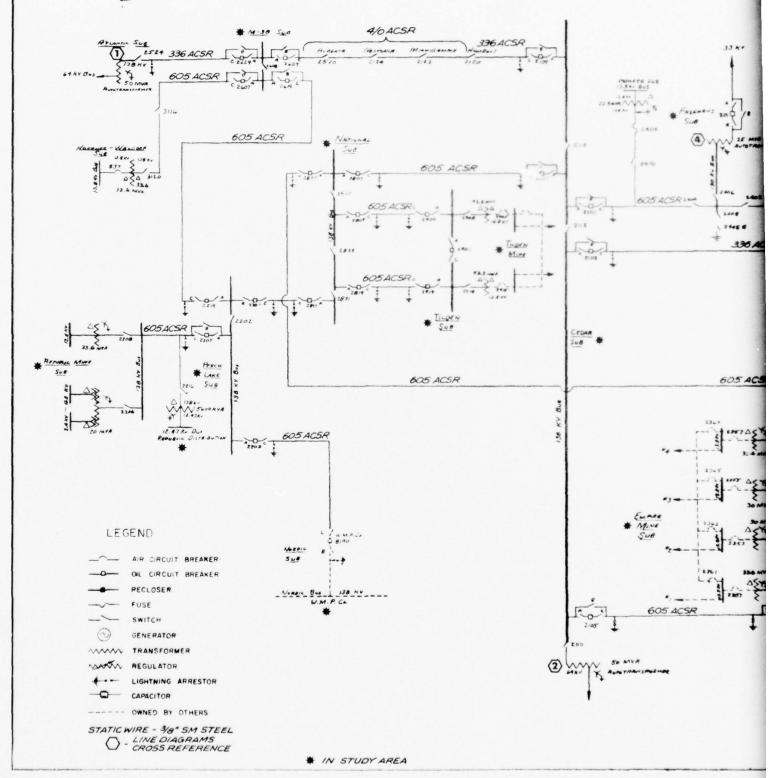
2.1.5 Projected Time-Phased Growth - Proposed Construction of New Facilities

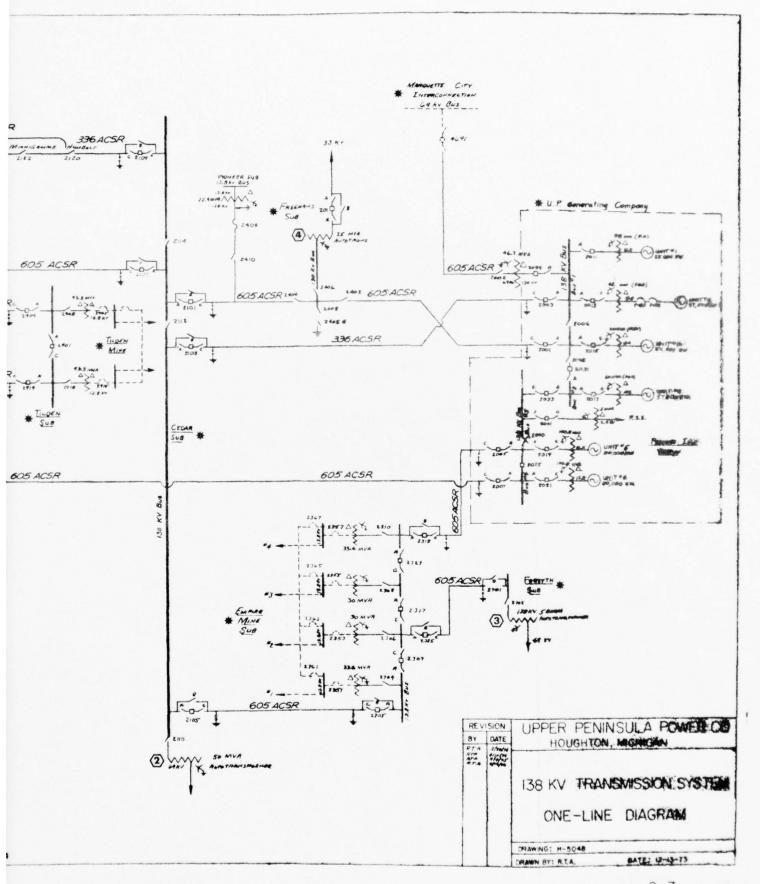
The Upper Peninsula Power Company has seven new 138 KV lines under construction. They are also proposing to rebuild an existing 69 KV line from Houghton to M-38 to provide 138 KV service. The Upper Peninsula Power Company is also planning to construct a White Pine line and substation to serve the above line. Those lines which are under construction are shown on the ELECTRICAL FACILITIES LOCATION MAPS.

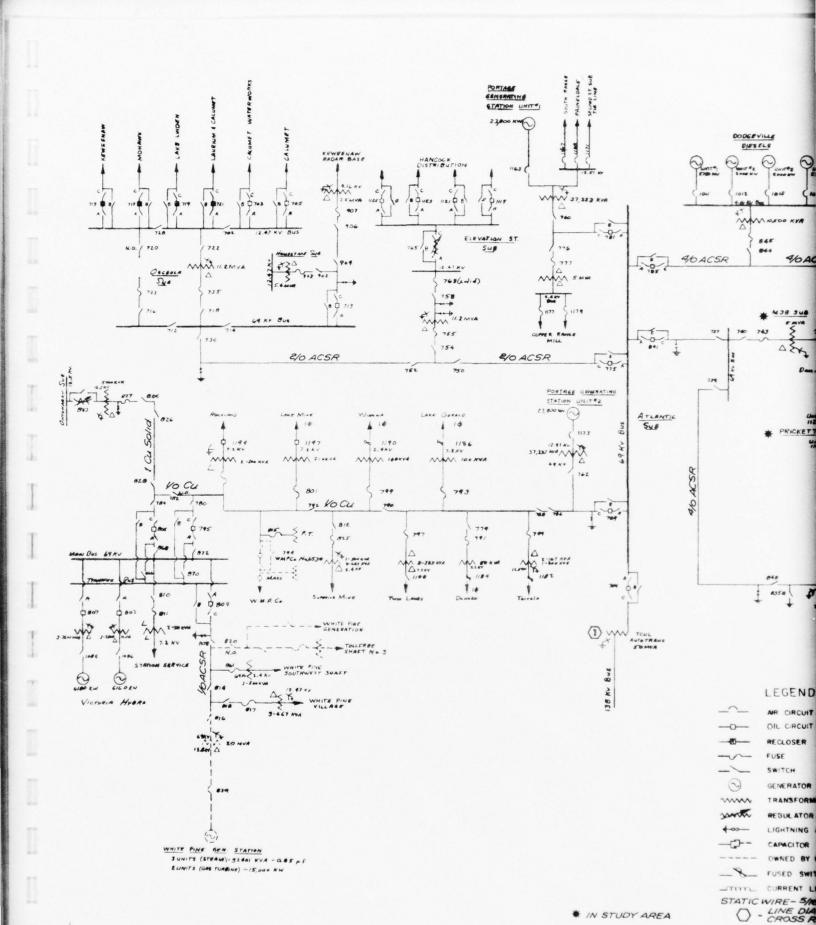
The Upper Peninsula Power Company is also planning to build an 80 MW plant by 1980 in the Houghton-Hancock area. The type of fuel to be used has not been determined as yet. The Cliffs Electrical Service Company is also studying various sites for a 500 MW coal-fired plant. Three 80 MW coal-fired units are under construction at UPG Co for completion in 1978.

Data regarding the capital posture to support additional plant construction is not readily available; however, financial data as of 1974 is included in SECTION 4.1.1.

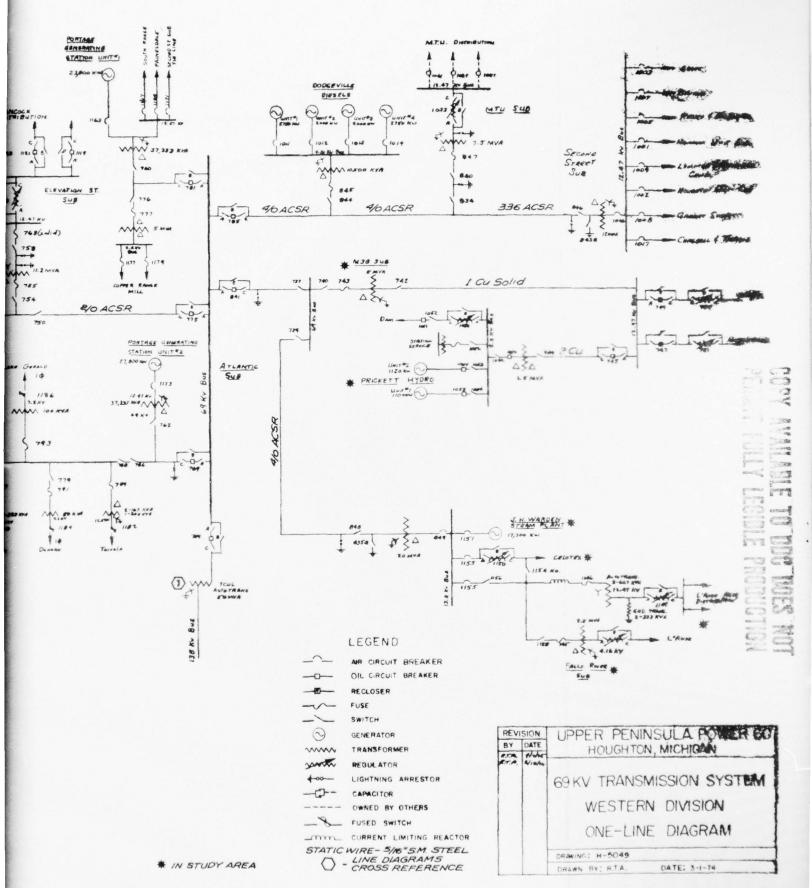
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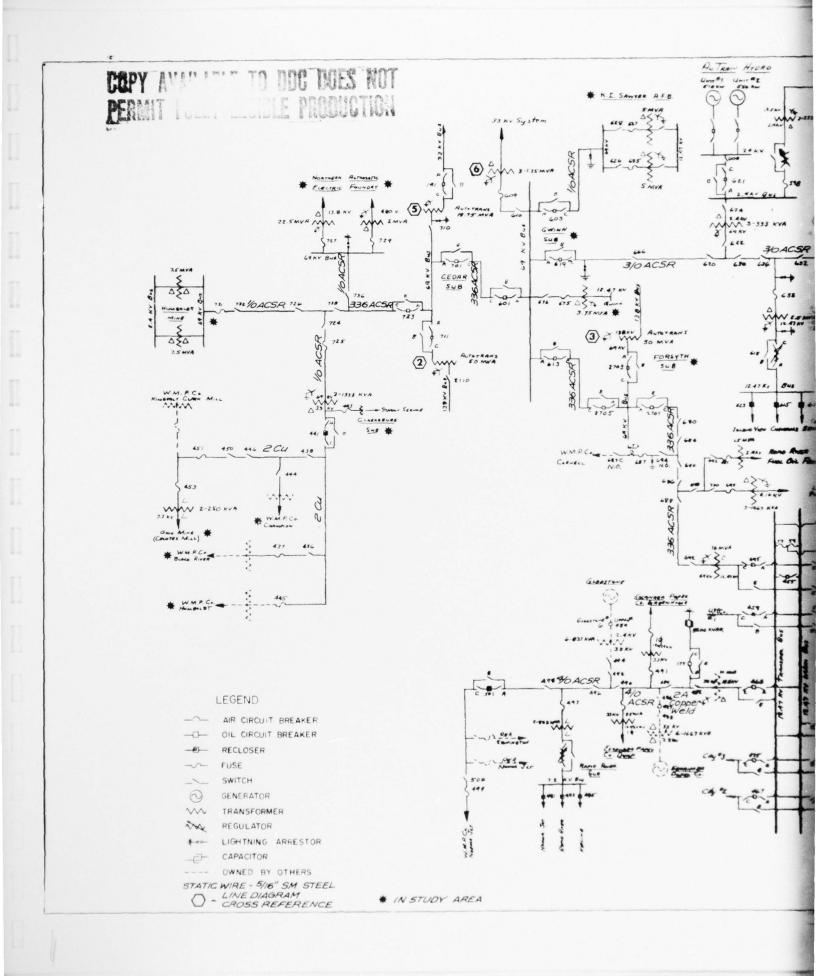


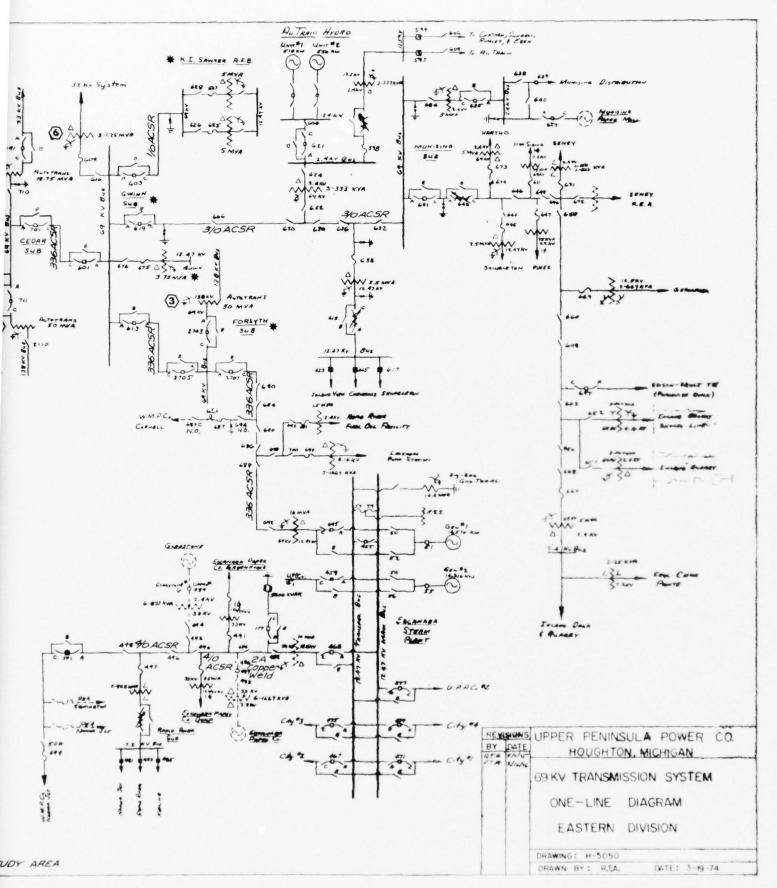


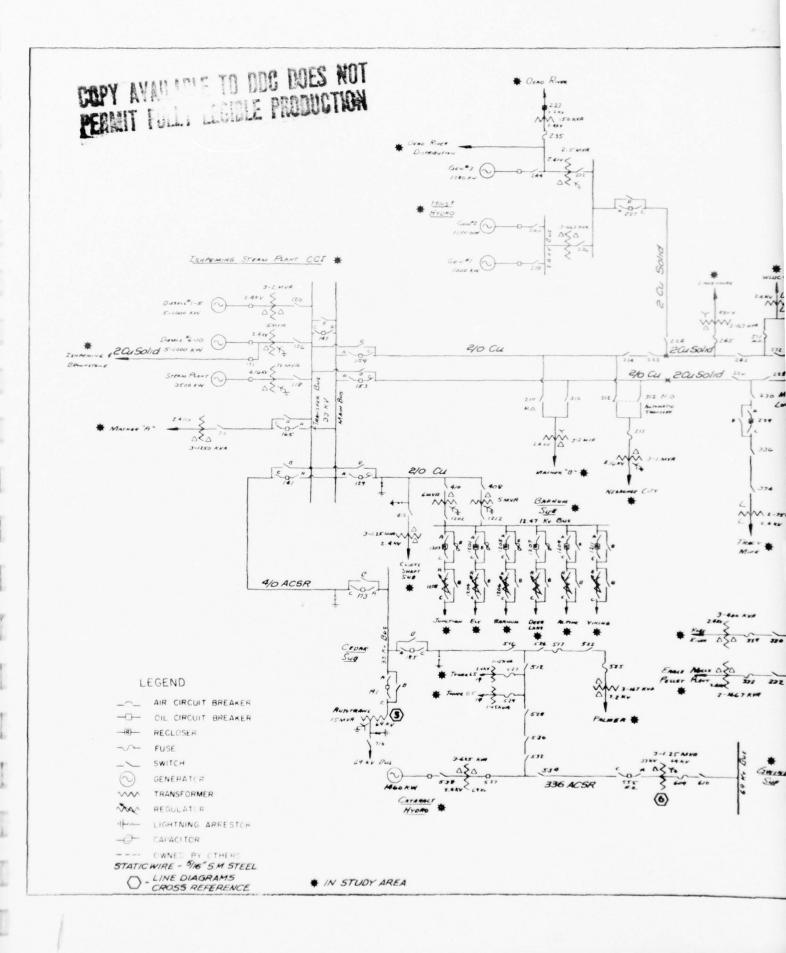


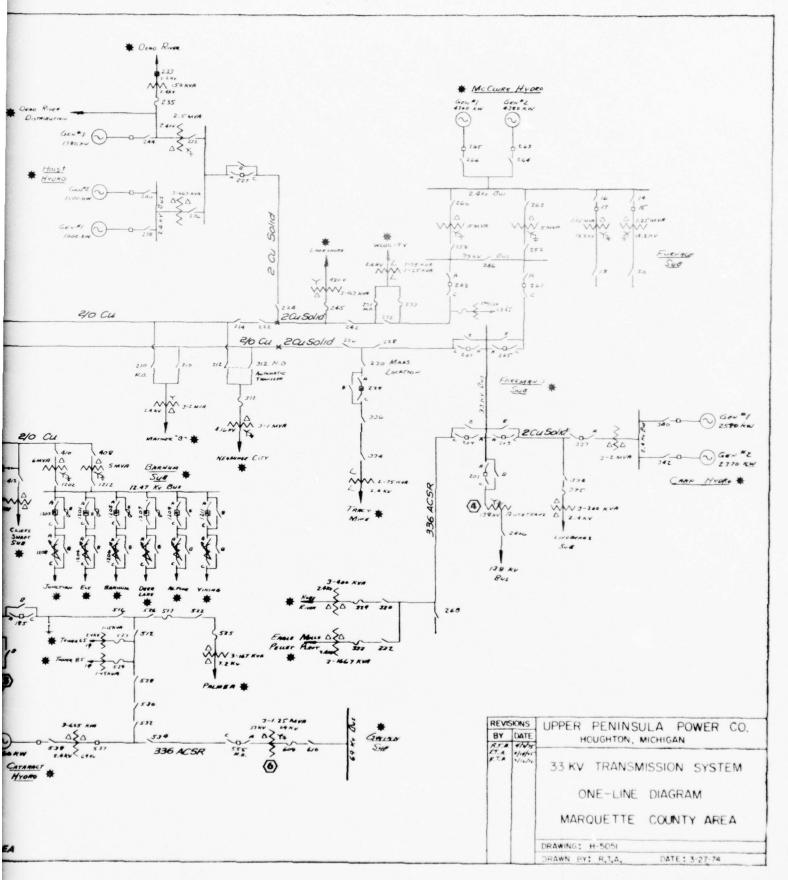
* IN STUDY AREA











2.1.6 System Right-of-Way, Easements, Land Use/Co-Use Arrangements

Transmission lines are generally located on easements of approximately 100 to 110 feet in width. Approximately 10% are on Upper Peninsula Power Company owned rights-of-ways. Nearly all distribution lines are on public rights-of-ways. When this is not possible, separate easements are obtained from individual property owners. Some distribution lines are on a co-use right-of-way arrangement with local telephone companies and cable TV company. A sample of a typical easement form is included in SECTION 4.2.1.

2.1.7 Construction Cost Experience

The Upper Peninsula Power Company current construction estimates for transmission lines including easement are as follows:

> 138 KV line - \$85,000/mile 69 KV line - \$45,000/mile 33 KV line - \$30,000/mile 7.2 KV line - \$10,000/mile

The Upper Peninsula Power Company officials estimate that the cost of changing 10 KVA single bushing transformers to two bushing transformers is about \$300 plus the cost of modifying the distribution line to insulate the neutral conductor. This cost is estimated at about \$1,000/mile of line.

2.1.8 Grounding Practices and Insulator Data

Transmission line structures usually have a 3/8-inch steel static wire tied to ground while wood poles have the butt section spiral wrapped with copper wire with additional ground rods or masses to give reasonable minimum resistance to ground. Neutral wires are often carried on low voltage spool insulators and tied to ground at each pole. Insulators used on the lines are of the class required for the line voltage or one voltage class higher.

2.1.9 Power Interruptions/Downtime

The Upper Peninsula Power Company officials state that transmission outages due to icing occur very seldom. Transmission line outage due to lightning occurs approximately twice a year per 100 miles of line. Transmission line outages due to miscellaneous causes occur approximately once a year per 100 miles of line. The length of the outage depends on the location and cause, varying from one to three hours.

2.1.10 Rates and Charges

Detailed rates and charges for energy are included in SECTION 4.

2.1.11 Miles of Power Lines Within the Study Area

The Upper Peninsula Power Company has the following number of miles of transmission and distribution lines in the Electrical Study Area.

138 KV - 183 miles 69 KV - 267 miles 33 KV - 70 miles 7.2/12.5 KV - 1,720 miles Underground - 36 miles

ABLE 1 - MAJOR SUBSTATIONS DATA - UPPER PENINSULA POWER COMPANY

Name	Location	No. of Transformers	No. of Circuits	Voltages Pri Sec.	No. of Feeders	Size of Faeders
SARNUM	ISHPEMING	1-6 MVA 3 Ø	-	33KV Δ	1-Ishpeming Steam Plant	#2/0 CU
		1-5 MVA 3 Ø	Q	7.2/ 12.5kv X ₁	1-Junction 2-Ely 3-Barnum 4-Deer Like 5-Alpine	
CLIFFS SHAFT	ISHPEMING	3-1.25 MVA 1 Ø	-	33KVA	1-Ishpeming Steam Plant	#2/0 CU
	ISHPEMING		2	33KV X	1-Ishpeming Steam Plant	#4/0 ACSR
		1-15 MVA 3 Ø Auto Trans	5	\$ 09KV X		#336 MCM ACSR #336 MCM ACSR
		1-50 MVA 3 p Auto Trans	4		138KV%, 1-Humboldt 2-National 3-U.P. Gen Co	#336 MCM ACSR #605 MCM ACSR #605 MCM ACSR
MATHER "B"	MATHER MINE	3-2 MVA 1 Ø	2	33KV V	1-Ishpeming 2-Steam Plant	#2/0 CU
EGAUNEE	NEGAUNEE	3-1 MVA 1 Ø	- 2	33KVA	1-Ishpeming 2-Steam Plant	#2/0 CU #2/0 CU
RACY MINE AKESHORE	TRACY MINE	2-75KVA 1 Ø Open Delta 3-167 KVA 1 Ø		33KVA 2.4KVA 33KVA	A medanline	#2 Solid CU
LUC - TV	MUC - TV ELY TMP.	1-75 KVA 1 Ø 1-25 KVA 1 Ø	-2 -	33KVA 480V%		#2 Solid CU
REEMAN	200 200 100 100 100 100 100 100 100 100	1-25 MA 3 0 Auto Trans	-4 %	33KV% 138KVV	-0.84- c	#2 Solid CU #35 MCM ACSR #2 Solid CU #2 Solid CU #2 Solid CU #2 MCM ACSR

Size of	Feeders	#2 Solid CU	Cust. Bus	#336 MCM ACSR	Cust. Bus	#336 MCM ACSR	Cust. Bus	#336 MCM ACSR	#1/0 ACSR	#3/0 ACSR	#336 MCM ACSR	#336 MCM ACSR		1		#4	#1 Solid CU			#1/0 ACSR 0		#2/0 ACSR	4 Sol CU	#1/0 ACSR	Cust. Bus	#605 MCM ACSR	#336 MCM ACSR	#336 MCM ACSR		#2 CU	#336 MCM ACSR	Cuct Rus
No. of	Feeders		2.4KVA 1-Lindbergs					1-Cedar Sub	1-KI Sawyer	2-Munising	3-Cedar	4-Forsyth	Bus	1-Gwinn	1-Atlantic Sub	2-Warden StmPlnt	1-Baraga	12.5KV% 3-Prickett Hydro	1-Warden StmPlnt	4.16KV x 1-L'Anse		12.5KV% 1-L'Anse Area	2-1 'Anse Area	1-Gwinn	2.5KV X.1-K.I. Sawyer	1-Empire Mine	1-Gwinn	2-Escanaba	1-Cedar	1-Ohio Mine	1-Clarksburg	1-Mino
es	Sec.		2.4KVA		2.4KVA		2.4KVA		69KV ½			4		12.5KVX 1-Gwinn				12.5KVX		4.16KV%		12.5KV%			12.5KV X		69KVX			33KV A		O AVIA 1 Mino
Voltages	Pri.	33KV A		33KV Δ		33KV A		33KVA					69KVA		69KVA				13.8KVA		13.8KV %			69KV A		138KV%			69KVX		Ø 1 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 ×	
No. of	Circuits	-		_	-	-		-	4				_	_	2			_			_	2		_		_	2				2	
No. of	Transformers	3-200 KVA 1 Ø		3-400 KVA 1 Ø		3-1667 KVA 1 Ø		3-1.25 MVA 1 Ø					1-3.75 MVA 3 Ø		1-5 MVA 3 Ø		35)		1-2.5 MVA 3 Ø		3-667 KVA 1 Ø	Auto Trans	(3-333 KVA 1 Ø) Grd Trans	2-5 MVA 3 0		1-50 MVA 3 Ø	Auto Trans		3-1333 KVA 1 Ø		2-7.5 MVA 3 Ø	
	Location					EAGLE MILLS		GWINN							ROAD	MILL ROAD (DETAILED	SHOW		L'ANSE		L'ANSE			K.I. SAMYER		FORSYTH			CLARKSBURG		HUMBOLDT MINE	
	Мате	LINDBERGS		ROBE RIVER		EAGLE MTLLS		GAIMN							M-38				FALLS RIVER		L'ANSE			K.I. SAWYER		FORSYTH			CLARKSBURG		HUMBOLDT MINE	

BLE 1 - Major Substations Jata - Upper Peninsula Power Company - Continued

4- 5					ACSR	ACSR	ACSR					ACSR	MCM, ACSR	ACSR	ACSR	ACSR	ACSR	ACSR	ACSR			ACSR	ACSR	ACSR		ACSR		I			ACSR	
Size of Feeders	#1/0 ACSR	Cust, Bus	#1/0 ACSR	Cust. Bus	#605 MCM,	#605 MCM, ACSR	#605 MCM,	Cust. Bus	Cust. Bus		Cust. Bus	#605 MCM,	MCM,	MCM,	MCM,	#605 MCM,	#605 MCM.	#605 MCM,	#605 MCM,			#605 MCM, ACSR	#605 MCM,	#605 MCM,	#1/0 ACSR	#605 MCM.			1	,	#336 MCM.	
No. of Feeders	1-Cedar Sub	1-Cust.		1-Cust.	0		Gen Co			3-Mine	4-Mine	1-Cedar Sub	2-U.P. GERI CO	3-Perch Lake	4-Tilden Sub	5-Tilden Sub	6-Empire Sub	1-National Sub	2-National Sub	1-Mine	2-Mine	1-Republic	al Sub		ic Dist	+	1-Mine	Bus	13.8KVA 1-Distribution	2.4KVA 1-Distribution		The latest and the la
ges Sec.		13.8KVA 1-Cust		4807				13.8KVA 1-Mine				ı								13.8KVA 1-Mine					12.5KV%		13.8KVA 1-Mine		13.8KVA	2.4KVA		The state of the s
Voltages Pri. St	69KV%		69KVA		138KV %							138KVA						138KVA				138KV 74				138KV %		138KV%			138KV%	
No, of Circuits					m			4				9						2		2		~							2			
No. of Transformers	1-22.5 MVA 3 Ø		1-2 MVA 3 B		4-30 MVA 3 Ø							None						2-50 MVA 3 Ø				1-5 MVA 3 Ø				1-30 MVA 3 Ø		1-20 MVA 3 Ø			1-20MVA 3 Ø	
Location	Sec 1, T47N, R28W		ELY IMP.		EMPIRE MINE	RICHMOND TWP.					Water Division in the same	ILLDEN IMP.						TILDEN MINE			Constitution of the same	CHAMPION IMP.				REPUBLIC TAP.	SOUTH OF REPUBLIC					
Name	NOSTH ELECTRIC	ALIMAN PARTIES PRINTED	AUTUMALIC FURY	The state of the state of	LMFIRE MINE						THE PROPERTY							TITOEN			100000	PENCH LANG			The second second	ACPUBLIC MINE						

Note: UPP Co has one mobile substation for emergency use.

2.2 WISCONSIN MICHIGAN POWER COMPANY

The individuals contacted during the data gathering phase of the study (two separate visits) were Al Alatalo, System Planning Engineer, and Norb Schemm, Supervisor of Engineering Services for Wisconsin Michigan Power Company. Their address is 807 South Oneida; Appleton, Wisconsin 54911. The telephone number is (414) 734-1411. The person to contact in the future is Otto R. Boll, Manager of Engineering. Two visits were made to the Iron Mountain office to obtain data from Edward Koerschner, Manager, and Willard Miller, Superintendent. The latter gentleman provided a great deal of help by annotating power company maps with line data not available from any other source.

2.2.1 Service Area

Although the main headquarters of Wisconsin Michigan Power Company are located in Milwaukee and Appleton, Wisconsin, the service area extends throughout eastcentral and northern Wisconsin and into the Upper Peninsula of Michigan. Power service is provided in the southcentral portion of the Upper Peninsula - primarily in Iron and Dickinson Counties. Wisconsin Michigan Power Company has franchise rights in townships extending from Gogebic to Schoolcraft Counties and north to Lake Superior; however, similar franchise rights are also granted to other power companies who provide various levels of service in these areas.

2.2.2 Outside Power Sources and Interconnections

Electrical energy is purchased by Wisconsin Michigan Power Company from Upper Peninsula Power Company to serve customers in three small areas. The points of purchase are Champion, Diorite and Black River (also know as Humboldt).

Interconnections also exist with Upper Peninsula Power Company at three points to either balance loads or provide alternate sources. At Nordic in Dickinson County, an interconnection (normally closed) is governed by a continuing agreement with specific

limitations as to usage by either company; however, the limits are exceeded quite often. At Mass in Ontonagon County and Cornell in Delta County, interconnections (normally open) are maintained for emergency purposes only. These two connections are manually operated.

2.2.3 Generating Plants

In the Upper Peninsula, Wisconsin Michigan Power Company power is all produced by hydro plants on the Menominee, Brule, Pine, Sturgeon, Michigamme and Paint Rivers. Some power could be provided by the Point Beach Nuclear Plant located to the south in Wisconsin.

Although the total system load is currently 439,000 KW, only 95,362 KW is utilized in the Upper Peninsula or Northern Division, as it is referred to by Wisconsin Michigan Power Company.

The following list provides a breakdown of the major Upper Peninsula generating plants within the SEAFARER Study Area.

Name (Location Nearest Community	Capacity) KW	Fue1	Percentage* Utilization Range
Twin Falls	Iron Mountain, M	I 6,490	Hydro	60-95
Brule	Florence, WI	6,666	Hydro	47-75
Pine	Florence, WI	4,000	Hydro	50-100
Sturgeon	Loretto, MI	1,000	Hydro	80
Big Quinnesec Falls	Iron Mountain, Mi		Hydro	79-100
Chalk Hill	Amberg, WI	9,750	Hydro	42-68
White Rapids	Amberg, WI		Hydro	60-86
Peavy Falls	Randville, MI		Hydro	93-100
Way	Crystal Falls, MI		Hydro	0-100
Lower Michigamme		,,000	rigaro	0-100
Falls	Florence, WI	10,667	Hydro	80-88
Hemlock Falls	Crystal Falls, MI		Hydro	32-84
Lower Paint	Crystal Falls, MI		Hydro	100
*Kingsford	Kingsford, MI	9,000	Hydro	55-68

TOTAL 95,362

** Switching only.

^{*} Variations based on monthly low to high flows within a dependable range over a 30-year record.

2.2.4 Transmission and Distribution System

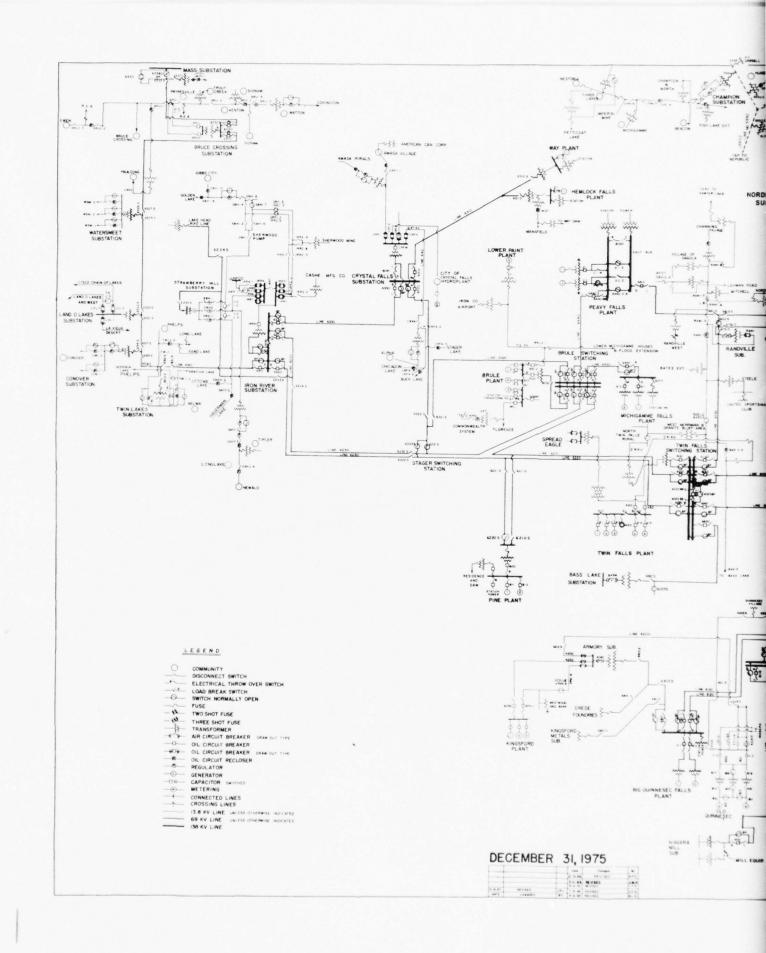
Within the Upper Peninsula, Wisconsin Michigan Power Company develops its power primarily on the Brule and Menominee Rivers on the border between Michigan and Wisconsin. Power is generated at 480 V, 2.3 KV, 4.16 KV, 6.6 KV and 6.9 KV and stepped up to 69 KV for transmission throughout the area. In limited areas, the 7.2 KV, 12.47 KV or 13.8 KV distribution system is utilized for transmitting outputs from hydro generating stations.

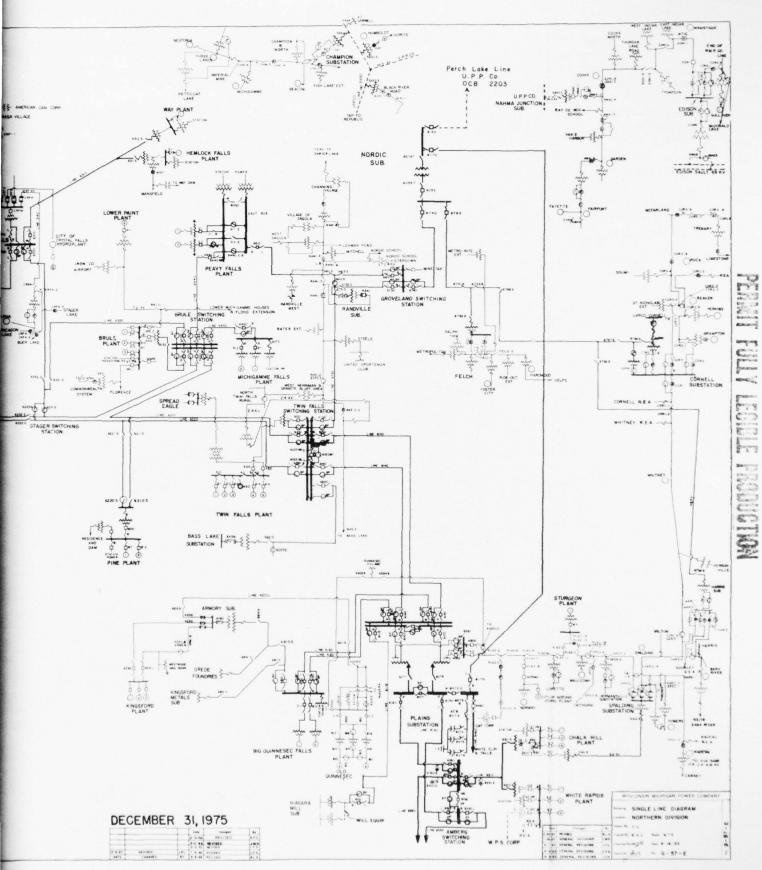
The Plains substation, located west of Norway, Michigan, receives power from the 138 KV network. The 138 KV lines to this substation are tied into the Wisconsin bulk electrical energy transmission network. One 138 KV line from Plains substation provides electrical energy to the Nordic substation and to an interconnection with the Upper Peninsula Power Company.

Plains and Nordic substations are the major 69 KV sources for the northern 69 KV network. The Nordic substation is located three miles west of Felch, Michigan. Data on major substations is included in TABLE 2.

The location of generating plants, substations, and transmission and distribution lines are shown on the enclosed ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. Detailed location by section, township and range, actual location on a side of a road right-of-way, pole or tower number, etc. are shown on separate maps prepared by Wisconsin Michigan Power Company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report and prints are available from GTE Sylvania.

The ONE-LINE DIAGRAM delineates the entire Northern Division system of Wisconsin Michigan Power Company.





2.2.5 Projected Time-Phased Growth and Posture to Support Additional Facilities

Data regarding the capital posture to support additional facilities construction is not readily available. The financial condition as of 1974 is shown in SECTION 4.1.2.

2.2.6 System Right-of-Way, Easements

Except in rare cases where property is deeded to Wisconsin Michigan Power Company, power lines are located in easements or road rights-of-ways. The 69 KV transmission lines are generally located within 100-foot easements. Distribution lines at 13.8 KV and lower voltages are generally located in road rights-of-ways or in trim easements 15 feet either side of the power line. The acquisition of rights to install electric lines on property in Upper Michigan is accomplished utilizing the following described forms:

WMP Co. form 111-33B - used for individuals, corporations, etc. when it is necessary to acquire a right-of-way of substantial width and maintain it free of obstruction.

WMP Co. form 111-34B - used for individuals, corporations, etc. when it is necessary to acquire a right-of-way of minimal width and maintain it free of trees and brush.

Special Use Permit - obtained from the U. S. Department of Agriculture Forest Service for the installation of an electric line on National Forest lands.

Service Line Agreement - obtained from the U. S. Department of the Interior, Bureau of Indian Affairs for the installation of an electric line on Indian lands.

Easement - obtained from the State of Michigan Department of Natural Resources for the installation of an electric line on State of Michigan lands.

Conditional Permit - obtained from the State of Michigan Department of Natural Resources for the installation of a buried cable across a river.

All right-of-way clearing is done by contract and the wood is disposed of as requested by the property owner. Easements are documented and can be obtained from Wisconsin Michigan Power Company in specific areas. A sample of these and other right-of-way documents are included in SECTION 4.2.2.

2.2.7 Construction Cost Experience

Wisconsin Michigan Power Company officials estimate that 1976 construction costs will be:

69.0 KV 3 Ø Wood Poles - \$51,000/mile 13.8 KV 3 Ø Wood Poles - \$19,000/mile 7.2 KV 1 Ø Wood Poles - \$10,000/mile

2.2.8 Grounding Practices and Insulator Data

Ground type substations have all steel and equipment connected to a ground mass of 10 ohms resistance or less. Transformer cases, grounded wye neutrals, and static wires are connected to the substation ground mass. Substation fences are connected to separate a ground mass of 25 ohms or less.

Steel towers have two grounds driven into the ground at opposite tower legs, with the static wires fastened to the tower steel.

On wooden pole lines (69 KV), each pole has a driven ground rod with a connection to the static wire.

Grounding of distribution lines below 15 KV falls into three classes, depending on the area and line system.

Ungrounded wye system which has no ground except equipment grounding.

- 2. Uniground system which is grounded at the source (substation or transformer) and the ground wire is carried along on insulators. The 3-phase system has 4 wires. Ground is tested for 25 ohms or less. If this is not achieved, two rods (5/8" x 8') are driven.
- 3. True multiground wye system which has a ground rod $(5/8" \times 8')$ driven at every other pole with no testing required and grounded at transformer with connection to transformer neutral.

Insulators on lines are of the voltage class of the line or one voltage class higher.

2.2.9 Power Interruptions/Downtime

SECTION 4.3.1 contains samples of the type of outage records available. Specific outage records are available from Wisconsin Michigan Power Company describing interruptions, downtime, causes, etc., all on computer printouts. The system is thorough and instantly recallable on viewing machines.

2.2.10 Rates and Charges

Complete data pertaining to rates and charges for Wisconsin Michigan Power Company is included in SECTION 4.4.2.

2.2.11 Miles of Power Lines

Within the study area, Wisconsin Michigan Power Company has the following number of miles of both transmission and distribution lines:

TOTAL 2,264 miles

ABLE 2 - MAJOR SUBSTATIONS DATA - MISCONSIV MICHIGAN POWER COMPANY

Мате	Location	Transformers	Bushings	No. of Circuits	Pri.	Voltages Pri. Sec.	No. of Feeders	Size of Feeders
ARMORY	KINGSFORD, MI	1-10 MVA 3 Ø	3 H5 A	-	69KV			#336 MCM ACSR
			4 1.5 %			13.8KV	<1	2 #336 MCM ACSR
BASS LAKE	IRON MOUNTAIN CITY	1-10 MVA 3 Ø	3 HS A		69KV			#336 MCM ACSP
			4 LSY			13.8KV	5	3 #336 MCM ACSR
								#2/0 ACSR
BRUCE CROSSING	STANNARD TWP.	1-3 MVA 3 Ø	3 HS A	2	09KV			#2/0 & #1/0 ACSR
	ONTONAGON CO.		3 LSA			13.8KV	3	2 #336 MCM ACSR
	HOLMES TWP.	1-7.5 MVA 3 @	3 LS A		2.4KV			and #2/0 ACSR
SPAULDING			4 HSA			VX98		200 ACCD
NOT MAKE	CHAMPION TWP.	6-500 KVA 1 @	2 HS A		34.5KV			Cust Bus
		in 2-3 @ Banks	2 LSA	All Delta)		13,8KV		#336 MCM ACSR
	CORNELL TWP.	1-7.5 MVA 3 Ø	3 HSA	_	VX69			#336 MCM ACSR
			3 LSA			13.8KV	3	2 #2/0 ACSR
	COVETAL CALLS TUR	COLUMN T						and #1/0 ACSR
		3-C MVR 1 19	Z H3A		69KV			#2/0 Cu Strd
						12.47KV	m	2 #2 Cu Strd
	EELCH TUB	2 490 VIV 1 A						and #336 MCM ACSR
	TENT WE	3-450 NVA 1 B	/ SH 7		69KV			#336 MCM ACSR
100000	CONTRACTOR OF STREET		Z HSA			13.8KV	2	2 #2 ACSR
	KINGSFORD CITY	3-2.5 MVA 1 Ø	Z HSA		69KV			#2/0 ACSR
			LSA			13.8KV	-	Cust Bus
GRUVELAND MINE	MINE FELCH INP.	CUSTOMER	1	MINE HAS A		LOAD ON WMP	.00	
	HARRIS TWP.	1-6 MVA 3 Ø			69KV			#336 MCM ACSR
			3 L A			13.8KV	89	2 #2/0 ACSR and
	TROM MOUNTAIN CITY	1 1 E MIN 2 A			1000			#336 MCM ACSR
TACT CINE	ANOTH PRODUCTION COLD		SHA		13.8K			#336 MCM ACSR
			4 L X			4160V	2	#2/D Cu Strd and
	TOOM OTVED FITT	Autor 3						#336 MCM ACSR
	THE WATER WITH		Z 11 Z	5	DYKV			2 #4/0 ACSR and
								#2/0 ACSR and
								#336 MCM ACSR
	1000					7.2KV	47	4 #2/0 Cu Strd
	SKELLING TAP.		Z HA		0.00 A			#2/0 ACSR
			2 . 4			4160V	_	Cust Bus

Cuttoday Bunad

TABLE 2 - Major Substations Data - Wisconsin Michigan Power Company - Continued

(OCERNO)

LAKEHEAD * IRON RIVER TWP. LAND-O-LAKES MATERSMEET TWP. MASS GREENLAND TWP. GREENLAND TWP. FELCH TWP. SANDVILLE SAGOLA TWP. TWIN LAKE WATERSMEET WATERSMEET TWP.	Transformans	No. of	No. of	Volt	Voltages	No. of	Size of
	r ansionaiers	Spiritigs of	CITCUITS	Fr.	sec.	reeders	reeders
				69KV			#3/0 ACSR
					4160V	_	Cust Bus
	1-3.75 MVA 3 Ø		_	69KV			#2/0 ACSR
		4 LA			13.8KV	3	#2/0 ACSR
	3-500 KVA 1 Ø	2 H A	,	69KV			#1/0 ACSR
		> 1	Interconnection normally		12.47KV	-	#2/0 ACSR
	1-150 MVA 3 Ø	4 HY	2	138KV		-	#795 MCM ACSR
		no	one from				(MM)
		UP	UPP Co, one from WMP Co			-	(UPP CO)
		4 L Y			69KV	2	2 #336 MCM ACSR
	2-50 MVA 3 Ø	·	4 @ 138KV	138KV		et.	2 #4/0 ACSR and
		4/60/17			County	1	#795 MCM ACSR
		4/60/4			DAKA	o	2 #1/0 Cu Strd
		3(13.8)△			13.8KV	2	2 #2/0 Cu Strd
	1-1 MVA 3 0	3 H A	2	09KV			1 #2/0 Cu Strd
			one of which is normally open				1 #336 MCM ACSR
		3 L A			13.8KV	2	2 #1/0 ACSR
	1-5 MVA 3 Ø			69KV			#2/0 ACSR
		3 LA			13.8KV	3	2 #336 MCM ACSR
	ALLES OF	-					and #1/0 Cu Str
	1-3.75 MVA 3 0	S H A	-	69KV			#2/0 ACSR
		3 L y			13.8KV	m	2 #2/0 ACSR and
PAMBERRY HILL	3-500 KVA 1 Ø	2 H D	_	VX69			#2/0 ACSR
RAMBERRY HTIL					12,47KV	23	2 #2/0 ACSR and
	1-3.75 MVA 3 0	I	-	KOVU			#336 MCM ACSR
		10		2000	12 287		PS/U ALSK
		,			5. OV		and #4/0 ACSR

Note: WMP Co has four mobile substations on flat beds used in emergencies. Voltages are extremely flexible for use in the system up to 69 KV

* Customer Owned Not in area

2.3 MARQUETTE BOARD OF LIGHT AND POWER

The office of the Marquette Board of Light and Power is located at 2200 Wright Street, N.W.; Marquette, Michigan. The telephone number is (906) 228-6900. Mr. Wilbert Wiitala is the Director, Mr. Ed Buska is the Production Superintendent, and Mr. Ted Nelson is the Assistant Production Superintendent.

2.3.1 Service Area

The Marquette Board of Light and Power services the entire City of Marquette and a large area adjacent to the City in all directions.

2.3.2 Outside Power Sources and Interconnections

The Marquette Board of Light and Power buys electrical energy from the Upper Peninsula Power Company. They have an interconnection for the purpose of selling electrical energy with the Alger Delta Cooperative Electrical Association.

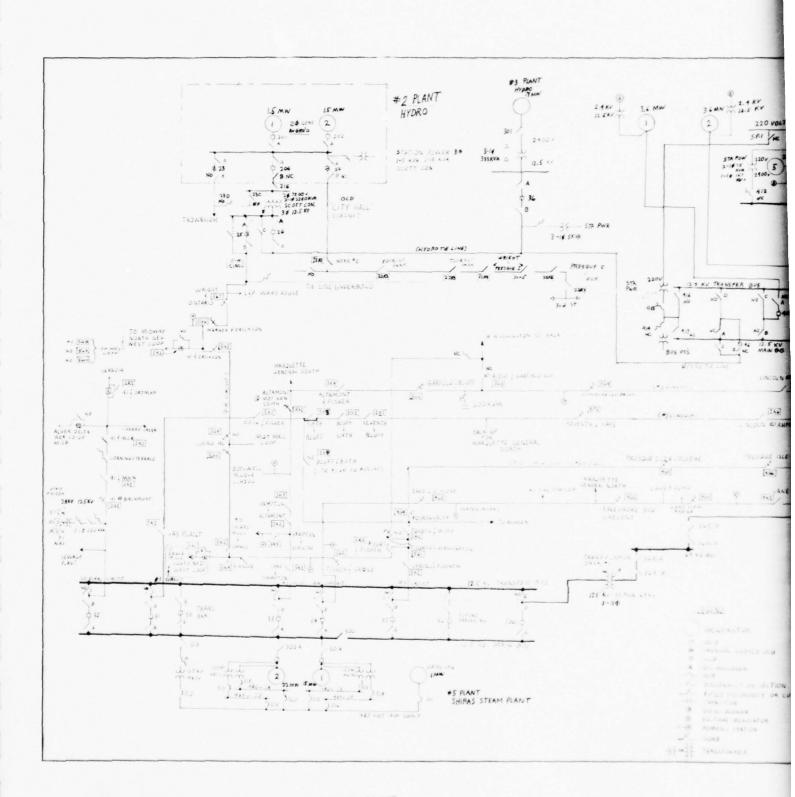
2.3.3 Generating Plants

The following generating plants are operated by the Marquette Board of Light and Power.

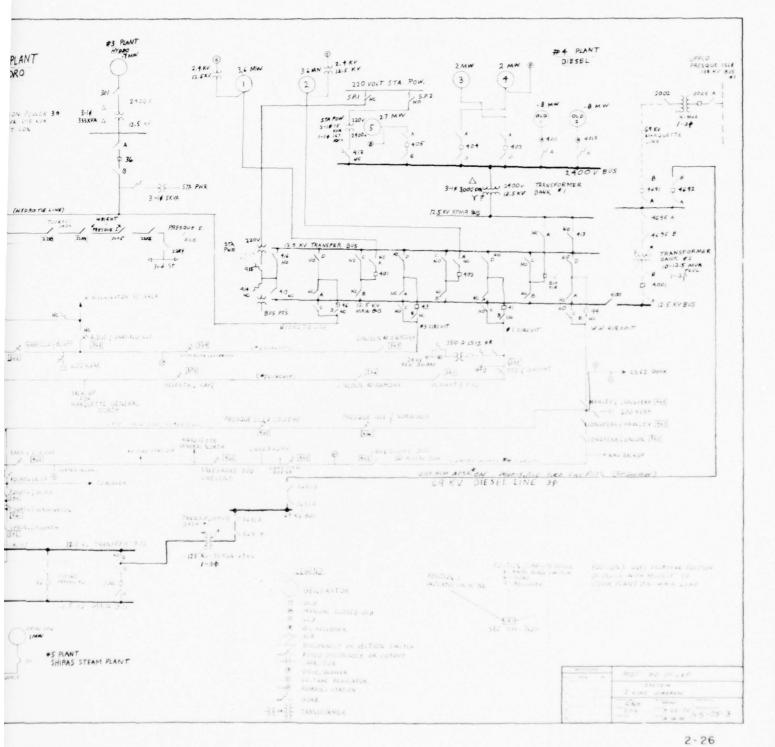
Name	Location	Capacity KW	Fue1	Utiliza- tion
#2 Hydro Station #3 Hydro Station #4 Diesel Station	Dead River/Wright St. Dead River/CR 550 Dead River/CR 550	3,000 700 15,500	Hydro Hydro Diesel Oil	70% 70%
#5 Shiras Station	Foot of Hampton St.	38,000	Diesel Oil & Coal	60%
	TOTAL	57,200		

2.3.4 Transmission and Distribution System

Data regarding major substations is included in TABLE 3. A ONE-LINE DIAGRAM is also reproduced for the entire Marquette Board of Light and Power System.



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The general location of generating plants, substations and transmission lines (outside the Marquette urban area) are shown on the enclosed ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. Detailed location by section, township and range, actual location of the right-of-way, pole or tower number, etc, are shown on separate maps prepared by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report but prints have been filed with GTE Sylvania.

2.3.5 <u>Projected Time-Phased Growth and Proposed Construction of New Facilities</u>

The Marquette Board of Light and Power has plans to build a 43 MW coal-fired steam turbine generating plant. It is expected that this generating facility will be in operation by approximately 1980 and will provide approximately 25% of its load to areas outside the city. The Marquette Board of Light and Power also plans to extend 69 KV lines to loop the city. A new substation is also planned on the west side of the city (69 KV to 12.5 KV) with a tentative capacity of 12,000 KVA. Data regarding the capital posture to support additional facility construction is not readily available. The financial condition as of 1974 is included in SECTION 4.1.3.

2.3.6 System Right-of-Way, Easements, Land Use/Co-Use Arrangements

Transmission lines are generally on public road rights-of-ways. Some distribution lines are on private property with 20-foot easements. In some areas, the Marquette Board of Light and Power shares poles with the telephone company and cable TV company.

2.3.7 Construction Cost Experience

The Marquette Board of Light and Power estimates construction costs at:

7.2 KV 3 Ø wood poles - \$15,000/mile (approx)
7.2 KV 1 Ø wood poles - \$6,000/mile (approx)

The Marquette Board of Light and Power officials also estimate that the cost of converting 10 KVA single bushing transformers to two bushing transformers is approximately \$500 plus \$85/crew hour.

2.3.8 Grounding Practices and Insulator Data

All power poles are grounded with grounding rods. Nearly all ground wires are at full capacity and run below phase wires.

Insulators are of the voltage class for the line voltage or one voltage class higher.

2.3.9 Power Interruptions/Downtime

Data concering power interruptions is included in SECTION 4.3.2.

2.3.10 Rates and Charges

Data and complete schedules on rates and charges is included in ${\tt SECTION}\ 4.4.3$

2.3.11 Miles of Power Lines

Within the study area, Marquette Board of Light and Power has the following number of miles of both transmisssion and distribution lines:

69 KV line - 4.1 miles
12.5 KV line - 152.0 miles
7.2 KV line - 35.5 miles
TOTAL 191.6 miles

	Location	No. of Transformers	No. of Circuits	Voltages Pri Se	ges Sec.	No. of Feeders	Size of Feeders
	AT HYDRO #2 STATION	2-2240 KVS 1 Ø Scott Conn.		7200V 2 Ø ungrounded			
			2		12.5KV 3 Ø arounded	#5H Hydro Tie	#336.400 ACSR Aluminum
	AT HYDRO #3 STATION	3-333 KVA 1 Ø		2400V Delta 3 0			
			-		12.5KV Delta 3 Ø	Hydro Tie	#336.400 ACSR Aluminum
	AT DIESEL #4 STATION	3-3000 KVA 1 Ø Trans Bank #1	Trans Bus	2400 V Delta 3 Ø			
			w		12.5KV Wye 3.0 grounded	Hydro Tie #3 Circuit #1 Circuit * WW Circuit	#336 #336 #4/0 CU #1/0 CU 8us
		1-12.5 MVA 3 Ø Trans Bank #2	-	12.5KV Delta 3.0			
			8		69KV	69KV Marquette	
					3 g grounded	69KV	#605 MCM ACSR
	AT STEAM PLANT	1-33 MVA 3 Ø Trans Bank #1	-	12.5KV Wye 3 Ø arounded			
			-		69KV Delta 3 Ø	69KV Diesel Line	#605 MCM ACSR
		No Transformers	ω		12.5KV	1-South Rural 2-#1 Circuit 3-#3 Circuit 4-WW Circuit 5-#5 Circuit	
-						CTITATIS DATIK ST	

* Alger Delta Big Bay Sub (south) is connected to this circuit.

2.4 ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION

The main offices of the Ontonagon County Rural Electrification Association are located at 511 J. K. Paul Street in Ontonagon, Michigan 49953. The telephone number is (906) 884-2510. Mr. William Chabot is the Manager.

2.4.1 Service Area

The Ontonagaon County REA serves three portions of the rural area in the western part of the SEAFARER Study Area.

2.4.2 Outside Power Sources and Interconnections

The Ontonagon County REA is interconnected with and purchases all electrical energy from the Upper Peninsula Power Company and the Wisconsin Michigan Power Company.

2.4.3 Transmission and Distribution System

Data regarding major substations is included in TABLE 4.

The general location of substations and transmission lines are shown on the enclosed ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. However, exact location by section, township and range, actual location of the right-of-way, pole or tower number, etc., are shown on separate maps prepared by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report but prints have been supplied to GTE Sylvania.

2.4.4 Projected Time-Phased Growth and Proposed Construction

All existing lines are carrying approximately 80 to 90% of their maximum load. The PEA plans to change lines in the Aura area from 7.2 KV to 14.4 KV and convert some single-phase lines to 3-phase lines. Data regarding the capital posture to support additional facility construction is not readily available. Financial condition as of 1974 is shown in SECTION 4.1.4.

2.4.5 System Right-of-Way, Easements

In Baraga County, all transmission and distribution lines are 34 feet off the centerline of road rights-of-ways. The standard road right-of-way in rural Michigan counties is 66 feet which places transmission line locations approximately one foot outside public road rights-of-ways on private property. A sample right-of-way form is included in SECTION 4.2.3.

2.4.6 Construction Cost Experience

Ontonagon County REA officials estimate that 7.2 KV single-phase line costs approximately \$6,600/mile to construct and 12.5 KV 3-phase line costs approximately \$11,000/mile.

2.4.7 Grounding Practices and Insulator Data

All grounding is required to be in accordance with REA standards. Every third pole has a $(5/8" \times 8")$ driven ground rod including all poles with transformers, capacitor bank, switches, or metering equipment. Insulators are of the voltage class for the line voltage or one voltage class higher.

2.4.8 Power Interruptions/Downtime

SECTION 4.3.3 contains an interruption report for calender year 1972 indicating typical power interruptions in the REA system.

2.4.9 Rates and Charges

Data concerning rates and charges is included in SECTION 4.4.4.

2.4.10 Miles of Power Lines

Within the study area, Ontonagon County Rural Electrification Association has 141 miles of $7.2\ KV/12.5\ KV$ transmission and distribution lines.

TABLE 4 - MAJOR SUBSTATIONS DATA - ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION

51Ze 01	Feeders	#1/0 ACSR	#1/0 ACSR		#8A	4 (E 51
No. of	Feeders				-		- 62
Voltages	Sec.		7,2/ 12.5KV		7.2KV	100 L	/.ZKV
Vol	Pri.	12.5KVX		7.2KV		VX69	
No. of	Circuits	_	-	-		-	2
No. of	Transformers	3-167 KVA 1 Ø		No Transformers	Meter Station	2-75 KV4 1 0	
	Location	SW 1/4 of the SW 1/4	Sec 19 T51N R33W	NW 1/4 of the SW 1/4		SW 1/4 of the NE 1/4	Sec Z/ ISIN R34W
	Vame	AURA		HERMAN		DEL K IE	

2.5 ALGER DELTA COOPERATIVE ELECTRICAL ASSOCIATION

The main offices of the Alger Delta Cooperative Electrical Association are located at 426 North Ninth Avenue; Gladstone, Michigan 49837. The telephone number is (906) 425-2331. Mr. Roy F. Hawkinson is the Manager and Mr. Edwin Englund is the Superintendent.

2.5.1 Service Area

Alger Delta is a Rural Electrification Association Co-op serving a large portion of the rural area in the south and eastern portion of the Electrical Study Area.

2.5.2 Outside Power Sources and Interconnections

The Alger Delta Co-op purchases all electrical energy from Wisconsin Michigan Power Company, Upper Peninsula Power Company, and Marquette Board of Light and Power.

2.5.3 Transmission and Distribution System

Data regarding major substations is included in TABLE 5.

The general location of substations and transmission lines are shown on the enclosed ELECTRICAL FACILITIES LOCATION MAPS in SECTION 3. Detailed location by section, township and range, actual location of the right-of-way, pole or tower number, etc., are shown on separate maps prepared by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as a part of this report but prints have been filed with GTE Sylvania.

2.5.4 Projected Time-Phased Growth and Construction

Company officials estimate a normal expansion of the entire system at approximately 10% annually. Data regarding the capital posture to support additional facility construction is not readily available. The financial condition as of 1974 is included in SECTION 4.1.5.

2.5.5 System Right-of-Way, Easement

All lines are on private property, approximately one foot off the road right-of-way line, unless otherwise noted.

2.5.6 Construction Cost Experience

Alger Delta Co-op officials estimate that the construction costs of one mile of 7.2 KV primary line including service drops, poles, wire, and transformers (5 KV), is approximately \$5,125. This does not include right-of-way clearing costs.

2.5.7 Grounding Practices and Insulator Data -

All grounding is required to be in accordance with REA standards. Every third pole has a $(5/8" \times 8")$ driven ground rod including all poles with transformers, capacitor bank, switches, or metering equipment. Insulators are of the voltage class for the line voltage or one voltage class higher.

2.5.8 Power Interruptions/Downtime

In 1974, company officials recorded 394 trouble calls. They estimated that interruptions during this period were equal to approximately 0.15% of the total consumer hours. The maximum outage duration was 12 hours during a particularly severe storm.

2.5.9 Rates and Charges

Data concering rates and charges of the Alger Delta Co-op is included in SECTION 4.4.5.

2.5.10 Miles of Power Lines

Within the study area, Alger Delta Cooperative Electrical Association has 488 miles of 7.2/12.5 KV transmission and distribution lines.

TABLE 5 - MAJOR SUBSTATIONS DATA - ALGER DELTA COOPERATIVE FLECTRIC ACCRETATION

Size of Foodows	3-#2/0 ACSR*	#6A #6A	#4/0 ACSR	3-#2/0 ACSR*	2-#ACSR		2-#8A	1-#64	3-#2 ACSR*	3-#4/0 ACSR 1-#1/0 ACSR		2-#4/0 ACSR**	2-#4A 1-#2 ACSR		2-#4A 1-#2 ACSR	3-#1/0 ACSR 1-#2 ACSR
No. of Feeders		- 2	-									-				
Voltages ri. Sec.		12,470	Same as Above		7,200/	around 2	2,233	Ground		7,200/ 12,470 / 14,400/	24,900 %		74,400/ 24,900			7.2/ 12.5kv Ground /
Volta Pri.	13,800	from UM	from WM	2,400 V	from WM 7,200/	13.800	13		13,800 from WM			7,200/ 12,470 Y Ground from Mp		14,400/ 24,900 Ground Y	7,200/	
No. of Circuits	1						2						-			-
No. of Transformers		Nestinghouse 3-Spares	3-167 KVA Westinghouse	3-333 KVA - GE	Spare GE Spare GE Double Bushing	2-75 KVA	7-75 KVA (Lyare)	2 22 7 000 2	Electric)	Spare (Porter E ectric)		2-333 KVA auto transformer by Kuhlman 1-333 KVA (Spare)	2-38.1 Regulators	2-333 KVA Auto Transformer Pole Mtd.	Triple Sushing	Regulators
Location	HEAR HADEAU; SIV CORNER	SEC. 3; 1379, KZ6W		NE CORNER; SEC. 31;		NE CORNER, SEC. 33				FENCE ENCLOSURE (56'(NS) x 49'-6"(EW))		NW 1/4 of SE 1/4 OF NW 1/4, SEC. 10; T48N, R25M; 25 MI. SE OF BIG BAY, POLE		CENTER OF SEC. 26 TSTN, R27N		JUNCTION OF US-41 AND M-28 AT HARVEY
lane		OSURE										S.S. SAY, SOUTH		BIG BAY, (NORTH) C		MARVEY

See I'M

2.6 CRYSTAL FALLS ELECTRIC AND WATER DEPARTMENT

The offices of the Crystal Falls Electrical and Water Department are located at 401 Superior Street, Crystal Falls, Michigan 49920. The information in this report was obtained from Mr. John Ondrus, Superintendent at (906) 875-6650.

2.6.1 Service Area

The Crystal Falls Electric and Water Department primarily serves areas within the City of Crystal Falls; however, they do extend service to a large rural area to the west of the city.

2.6.2 Outside Power Sources and Interconnections

The Crystal Falls Electric and Water Department is interconnected with, and buys electrical energy from, Wisconsin Michigan Power Company.

2.6.3 Generating Plants

The Crystal Falls Electric and Water Department operates one generating plant.

Name:

Paint River Hydro Power Plant

Location:

3/4 mile north of the center of Crystal Falls,

located on North 6th Street in the City of

Crystal Falls

No. of Units:

Type of Drive:

Water Whool

Capacity:

350 KVA and 500 KVA

Voltage:

2 400

Transformers:

3 - 1000 KVA GE

2,400 V to 12,400 V grounded wye

2.6.4 Transmission and Distribution System

The only major substation is located on Bristol Mine Road at US-2/141. It contains the following:

3 - 100 KVA transformers (GE) Primary - one 12,400 V (3 wire \triangle - #2 aluminum) Secondary - one 4,160 V (4 wire grounded wye)

The system is interconnected with Wisconsin Michigan Power Company at 12.4 KV delta through a metering station feeding the area west of Crysta? Falls.

The general location of the generating plant, substation and transmission lines are shown on the ELECTRICAL FACILITIES LOCATION MAP in SECTION 3. Detailed location by section, township and range, actual location of the right-of-way, pole or tower numbers, etc., are shown on separate maps provided by the power company and keyed to each ELECTRICAL FACILITIES LOCATION MAP. These maps are too numerous to include as part of this report but prints have been supplied to GTE Sylvania.

The Crystal Falls Electric and Water Department is currently changing the distribution voltage from 2,400 volts to 12,400 volts and expects to have the work completed within three years.

2.6.5 Grounding Practices and Insulator Data

Transformer neutrals are grounded on 4 wire wye systems. Every fifth or sixth pole has a $(5/8" \times 8")$ driven ground rod including all poles with transformers, capacitor banks, switches, or metering equipment. Insulators are of the voltage class for the line voltage or one voltage class higher than line voltage.

2.6.6 Power Interruptions

Company officials report that they experience approximately three interruptions per year with a maximum duration of four hours.

2.6.7 Rates and Charges

Detailed rates and charges are included in SECTION 4.4.6.

2.6.8 Miles of Power Lines

Within the study area, Crystal Falls Electric and Water Department has 30 miles of 2.4 KV and 12.5 KV transmission and distribution lines.

2.7 K. I. SAWYER AIR FORCE BASE *

2.7.1 Electrical Power System

2.7.1.1 Supply

Electrical energy is provided to the base by Upper Peninsula Power Company. The location of lines and the main base substation are shown on ELECTRICAL FACIALITIES LOCATION MAP - SHEET 6 in SECTION 3.

The October, 1975 bill from Upper Peninsula Power Company shows a monthly cost of \$152,816.75 including 4,737,000 KWH at a maximum demand of 8.6872 MW.

Consumption rates for calendar year 1971 and 1972 are as follows:

KWH			Cost
1973	1972	1973	1972
6,210,760 5,877,880 5,642,640 5,404,440 5,003,840 4,406,840 4,510,640 4,484,889 4,618,120 4,910,600 5,231,360	6,480,120 6,023,320 5,677,880 5,386,680 4,619,600 4,290,520 4,336,960 4,089,760 4,562,960 4,872,640 5,337,400	\$120,442 114,543 111,669 105,515 97,941 87,308 89,047 88,819 94,297 98,644 106,321	\$115,465 109,477 103,093 98,431 85,056 82,518 84,824 81,701 87,671 93,607 103,724
	1973 6,210,760 5,877,880 5,642,640 5,404,440 5,003,840 4,406,840 4,510,640 4,484,889 4,618,120 4,910,600 5,231,360	6,210,760 6,480,120 5,877,880 6,023,320 5,642,640 5,677,880 5,404,440 5,386,680 5,003,840 4,619,600 4,406,840 4,290,520 4,510,640 4,336,960 4,484,889 4,089,760 4,618,120 4,562,960 4,910,600 4,872,640 5,231,360 5,337,400	1973 1972 1973 6,210,760 6,480,120 \$120,442 5,877,880 6,023,320 114,543 5,642,640 5,677,880 111,669 5,404,440 5,386,680 105,515 5,003,840 4,619,600 97,941 4,406,840 4,290,520 87,308 4,510,640 4,336,960 89,047 4,484,889 4,089,760 88,819 4,618,120 4,562,960 94,297 4,910,600 4,872,640 98,644

2.7.1.2 Distribution

I

The Upper Peninsula Power Company main is a 69 KV, 3 phase, three-1/O ACSR wire feeding the power company owned transformers in the Government owned main substation at the southeast corner of the base near the sewage treatment plant. The feeder connects with the Upper Peninsular Power Company's Gwinn substation five miles away.

^{*} All data except the October, 1975 Energy Bill and Rate Schedule was obtained from the K. I. Sawyer Master Plan Report, January, 1974.

Installed in the base substation are two 5,000 KVA Delta to Wye transformers which reduce the supply voltage to 7,200/12,470 volts. These transformers have a 7,000 KVA forced-air capacity. Seven 1,200 amp power circuit breakers (one main and six feeder breakers) limit the load on the transformers. Six fused disconnects and two air break switches are also installed at the station. The power company owns all equipment up to the voltage regulator. Three main feeders, two of four-2 ACSR size and one of four-2/0 ACSR size, furnish power to the distribution network on the base area. Three-four wire feeds (one-2/0, one-1/0 and one-4/0 ACSR) serve the Capehart housing area. Except in the airfield area, all feeders are carried overhead on poles. The airfield area is provided with an underground duct and manhole system. The general condition of wire, poles and transformers is good and apparently adequate to meet base needs.

2.7.1.3 Street Lighting

Street lighting fixtures are located at critical points on the base and in the housing area. Constant current regulators operate the street lights in the housing area. A number of one-6 ASCR series loops are fed from these regulators throughout the area. The main base series system is operated through six constant current regulators feeding six-6 ACSR series loops.

2.7.1.4 Emergency Power Supply

Emergency power is available at the base in the form of fixed and portable power units. The locations in the tabulation are those noted at the time of survey:

KW Rating	Manufacturer	Туре	Serial No.	Location
10 10 150 150 60 30 60 250 200 60 60 15 10 10 30 30 100 15 5 10 50 100 15 50	Consolidated Consolidated Caterpillar Cummings Intl Fermont Intl Fermont Intl Fermont Caterpillar Cummings Consolidated Intl Fermont Consolidated Continental Continental Intl Fermont	EMU-10 EMU-10 D-337 NHRSGA MB-17 MB-18 MB-17 D-375 VT 12 PU-361 MB-17 MB-19 10R061 EMU-10 EMU-10 EMU-10 EMU-10 C0427A18 CD802A18 MB-15 MB-15 MB-15 MB-15 MB-15 MB-15 MB-15 MB-16	65-0038 67-1478 37B-2981 210808 70-1478 63-0116 52-60-091 43B1256 267520 84746 52-60-115 71-1021 222464 66-0405 67-1427 63-0118 691512 67-05-86 HP-26014299 924 72-1637 R14997 R14996 70-0903 70-0321 70-0327 333 16-5005 & 6 67-1286	Bldg 531 Bldg 110 Bldg 310 Bldg 400 Bldg 427 Bldg 104 Bldg 426 Bldg 603 Bldg 531 Bldg 531 Bldg 501 Bldg 726 Bldg 725 Bldg 230 Bldg 5046 Bldg 222 Bldg 200 Bldg 209 Bldg 209 Bldg 209 Bldg 209 Bldg 200 Bldg 209 Bldg 200 Bldg 209 Bldg 200 Bldg 709 Bldg 860 Bldg 860 Bldg 709 Bldg 602
60 60	Kurz & Root Consolidated	KP-60 4002	72,3129 344	Bldg 4006 Bldg 304

Base Civil Engineer

K. I. Sawyer Air Force Base Gwinn, Michigan

TO UPPER PENINSULA POWER COMPANY Dr.

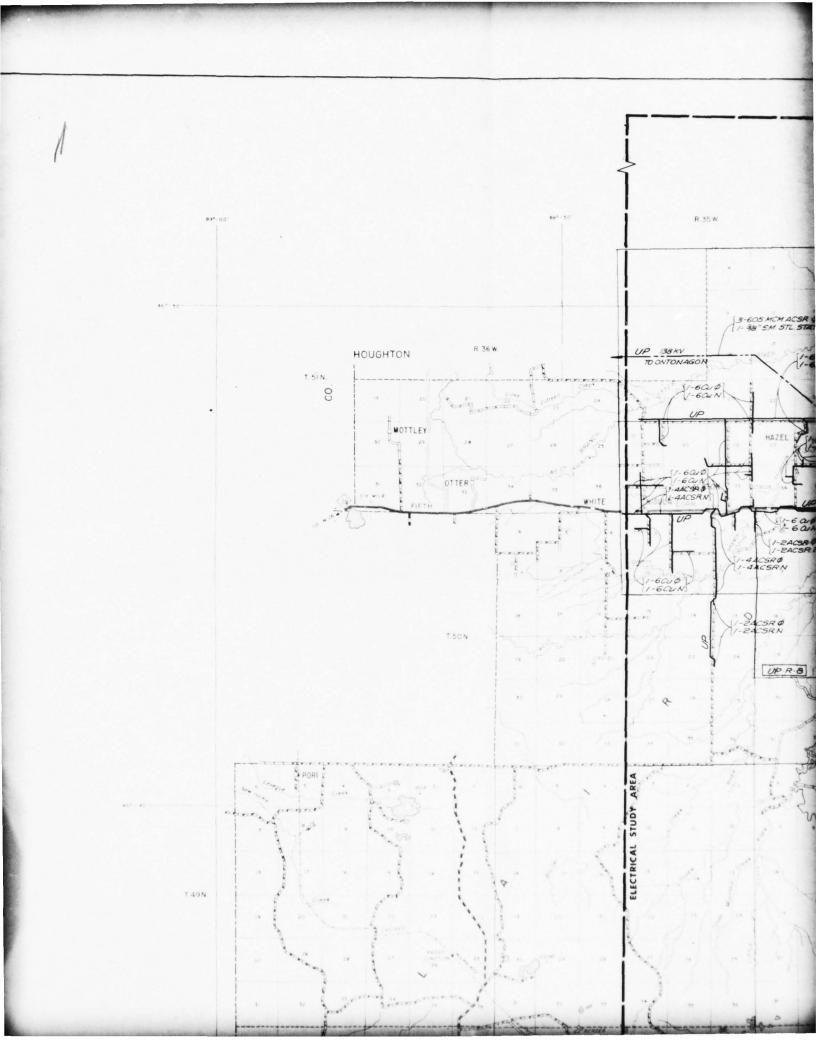
WP & C-I (New Rate)

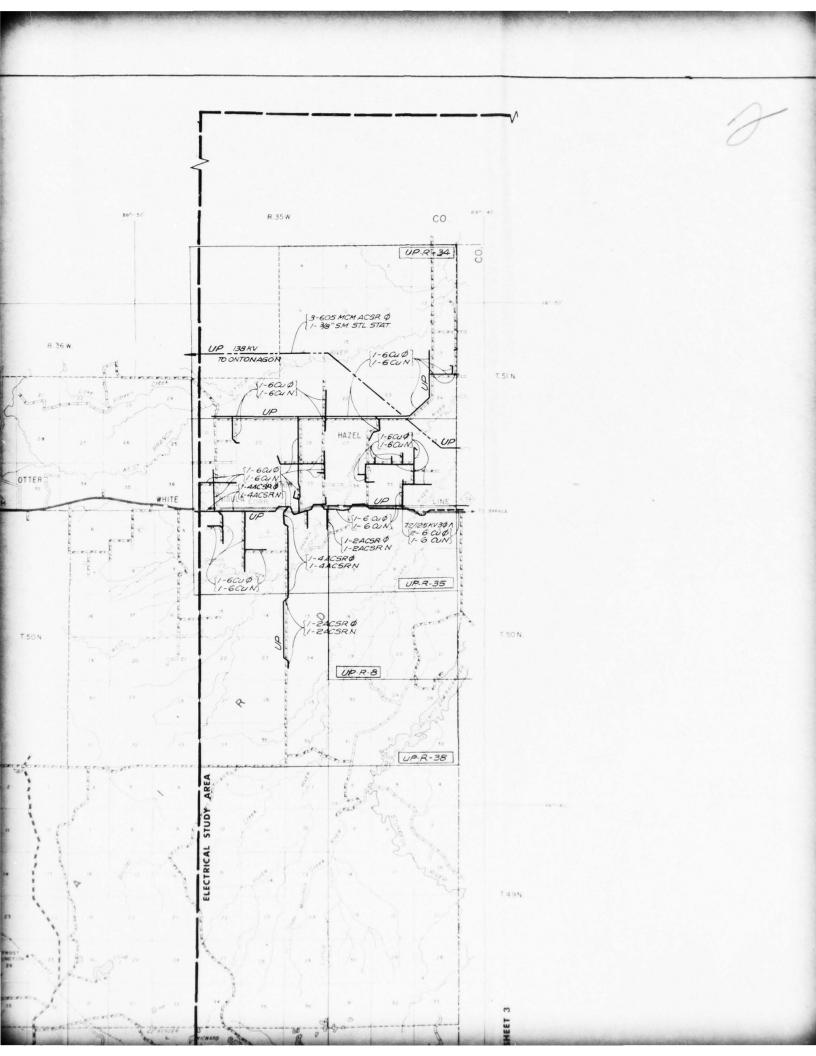
K. I. Sawyer Air Contract No. F206 Readings: Meter No. 10/22/75 9/22/75 Constant	Force Base 513-70-C-0086 2600 Meter No. 4477 9722 4755 1000 4,755.000 KWH 18,000 KWH Used by School 4,737,000 KWH	8140 2135 2041 94 10 940 KWH
Maximum Demand:	8,856 KW - 168.8 KW = 8,687	.2 KW
Demand Charge: 200 KW @ \$6. 2,800 KW @ \$5. 5,687.2 KW @ \$4. Energy Charge: 500,000 KWH @ 4,237,000 KWH @ Fuel Clause Adju: 4,737,000 KWH @	1.50¢ 1.40¢	\$ 1,200.00 14,280.00 27,014.20 7,500.00 59,318.00 43,438.29 \$152,750.49
Outer Marker: 940 KWH @ Rate C	-1	57.64
Fuel Clause Adjus 940 KWH @ .917¢	stment":	8.62 66.26
	Net Bill for October, 1975	\$152,816.75

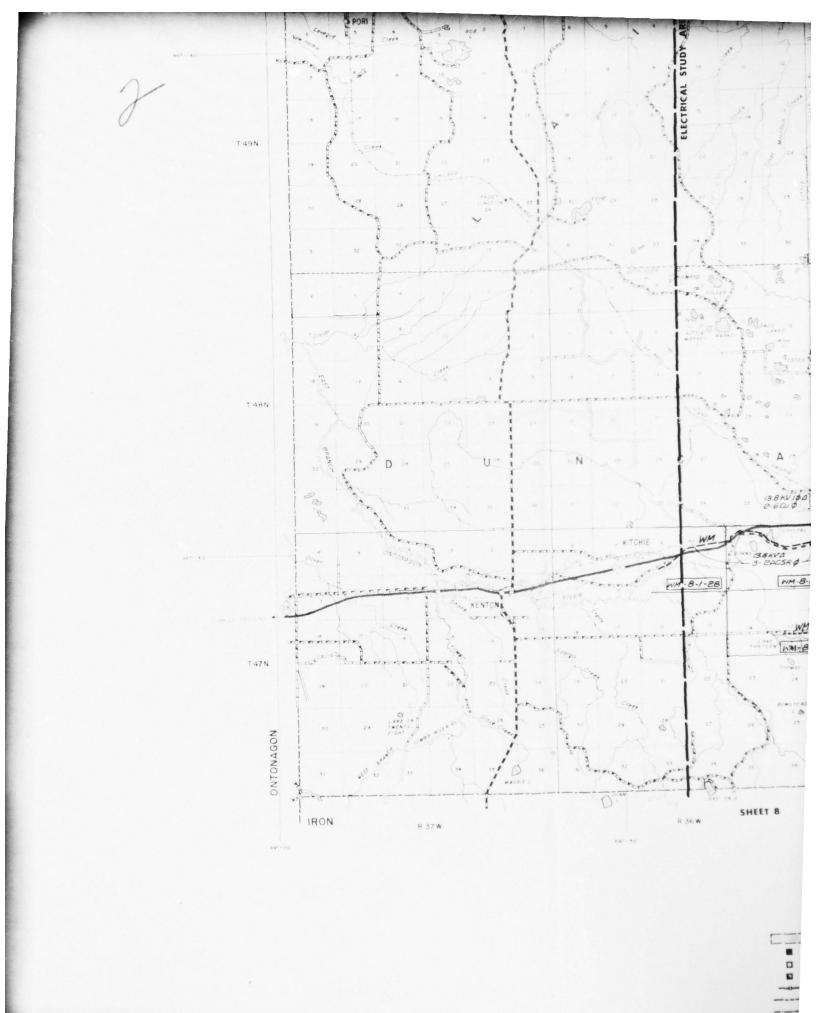
section 3 electrical facilities location maps

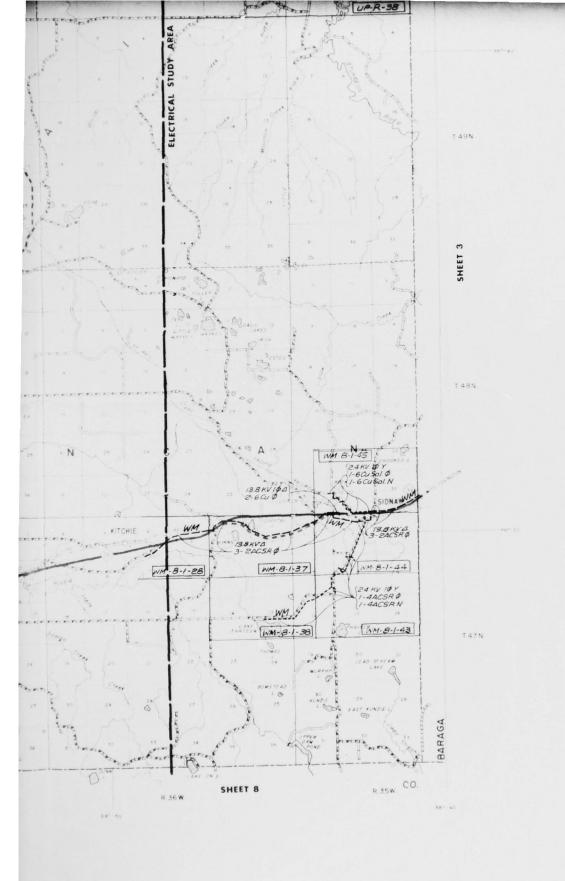
3.0 - ELECTRICAL FACILITIES LOCATION MAPS

Sheet No.	(ounty	Scale
2	Houghton	1"=1 Mile
3	Baraga	l"-l Mile
4	Marquette	l"-l Mile
5	Marquette	l"=1 Mile
6	Marquette	l"-l Mile
7	Alger	l"-1 Mile
8	Iron	l"-1 Mile
9	Iron	l"-1 Mile
10	Dickinson	l"-1 Mile
11	Menominee	l"-1 Mile
12	Delta	1"-1 Mile









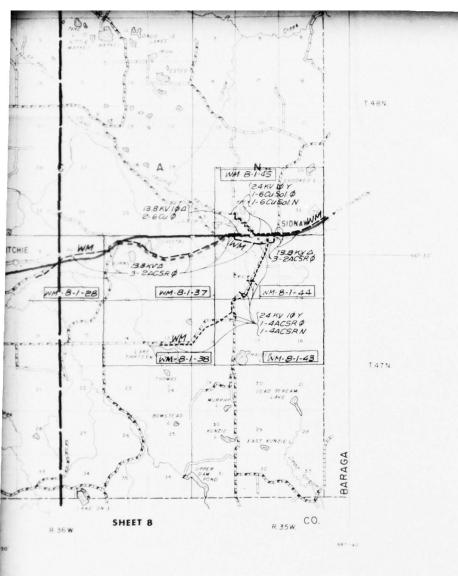
ELECTRICAL FACILITIES LEGEND

EXCLUSION AREA

GENERATION PLANT - NAME
SUBSTATION - NAME
SWITCHING STATION - NAME
INTERCONNECTION

138 KV, 3 & LINES
G9KV, 3 & LINES

GHWAY PLANNING SURVEY

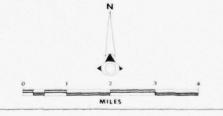


ELECTRICAL FACILITIES LEGEND

- EXCLUSION AREA GENERATION PLANT - NAME SUBSTATION - NAME SWITCHING STATION - NAME [3] INTERCONNECTION 138 KV, 3 . LINES 69KV, 3 & LINES 33KV, 3 & LINES 12.5KV,3 \$ LINES (OR 13.8KV OR 14.4KV) 7.2 KV, I & LINES ----- 2.4 KV. I O LINES UGD. UNDERGROUND LINES POWER CO. MAP REFERENCE NUMBER
 - UPPER PENINSULA POWER CO. UP WISCONSIN MICHIGAN POWER CO. WM MARQUETTE BOARD OF LIGHT AND POWER MP LA L'ANSE BOARD OF PUBLIC WORKS BARAGA BOARD OF PUBLIC WORKS 88 CRYSTAL FALLS LIGHT AND WATER DEPARTMENT CF ONTONAGON REA OR NORWAY ELECTRIC LIGHT DEPARTMENT NE ALGER DELTA REA AD

KI SAWYER AIR FORCE BASE

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PROJECT SEAFARER

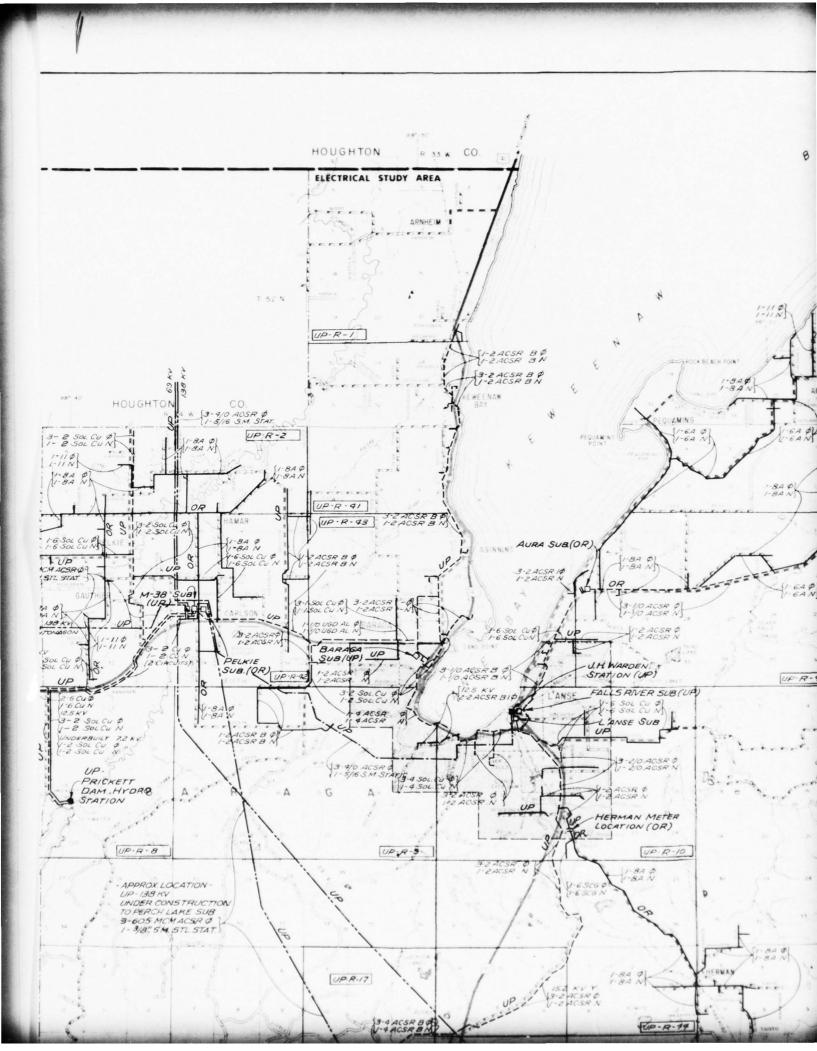
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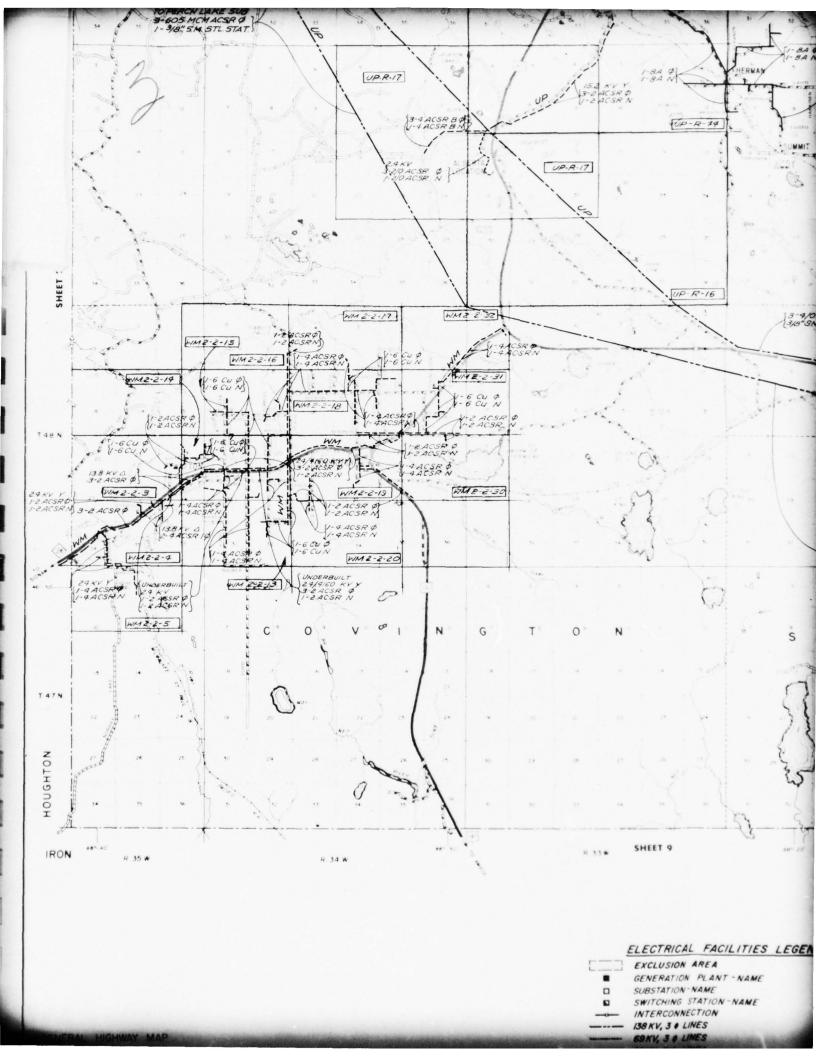
FOR GTE, SYLVANIA INC.
SUBCONTRACT NO. CSD-C-75-1048

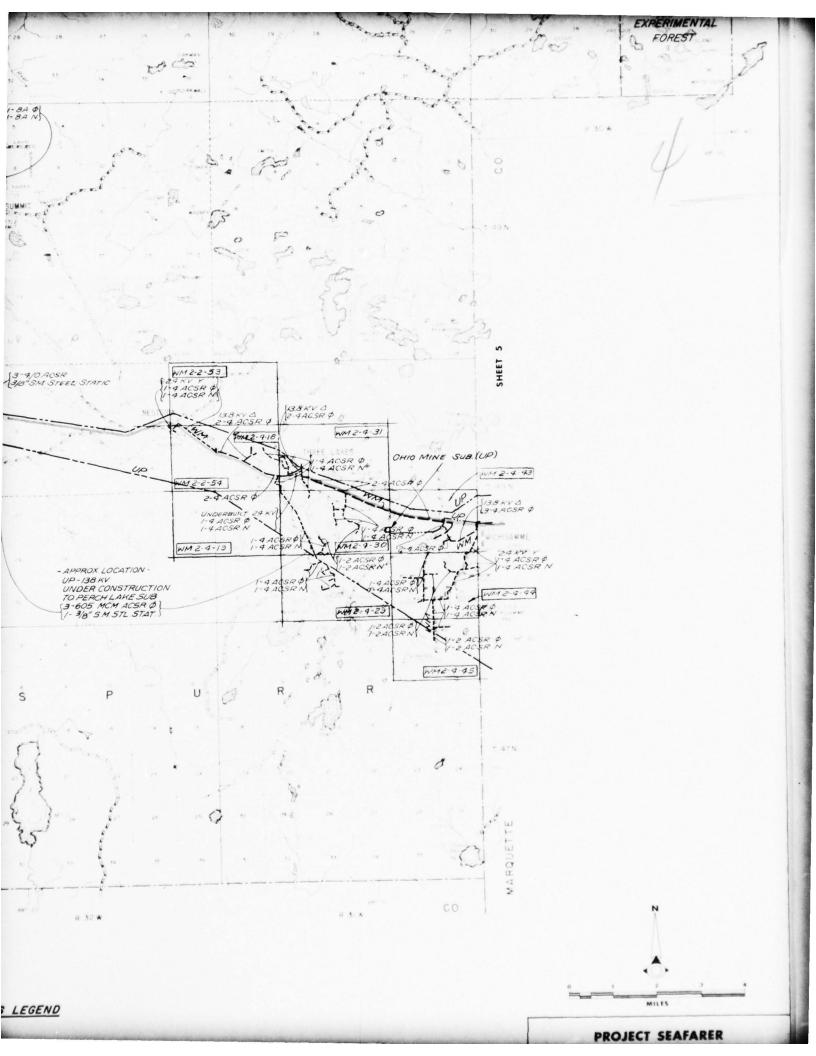
ELECTRICAL FACILITIES LOCATION
HOUGHTON COUNTY, MICHIGAN

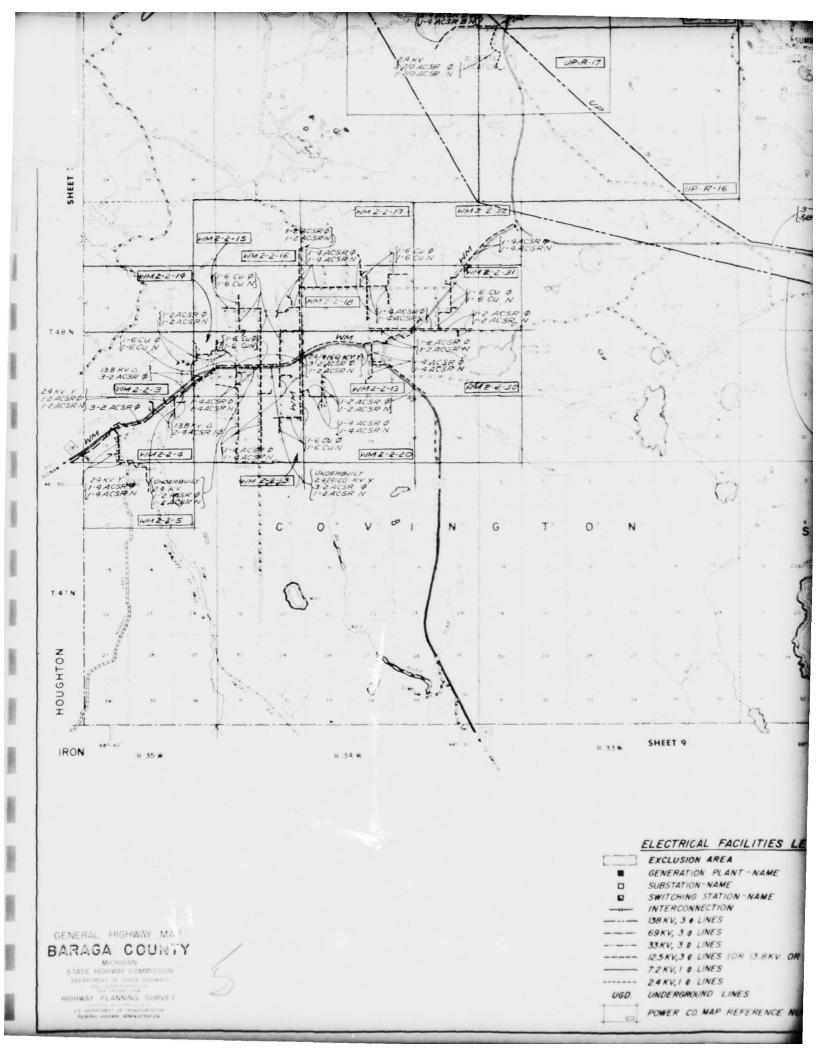


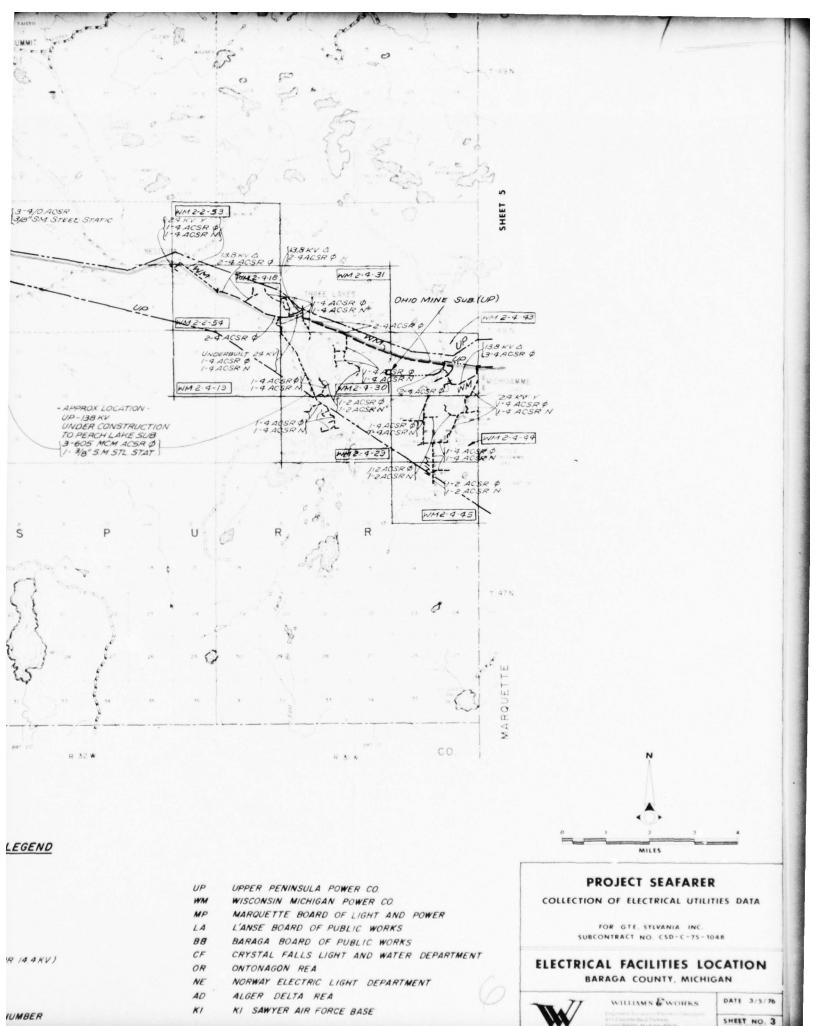
WILLIAMS & WORKS

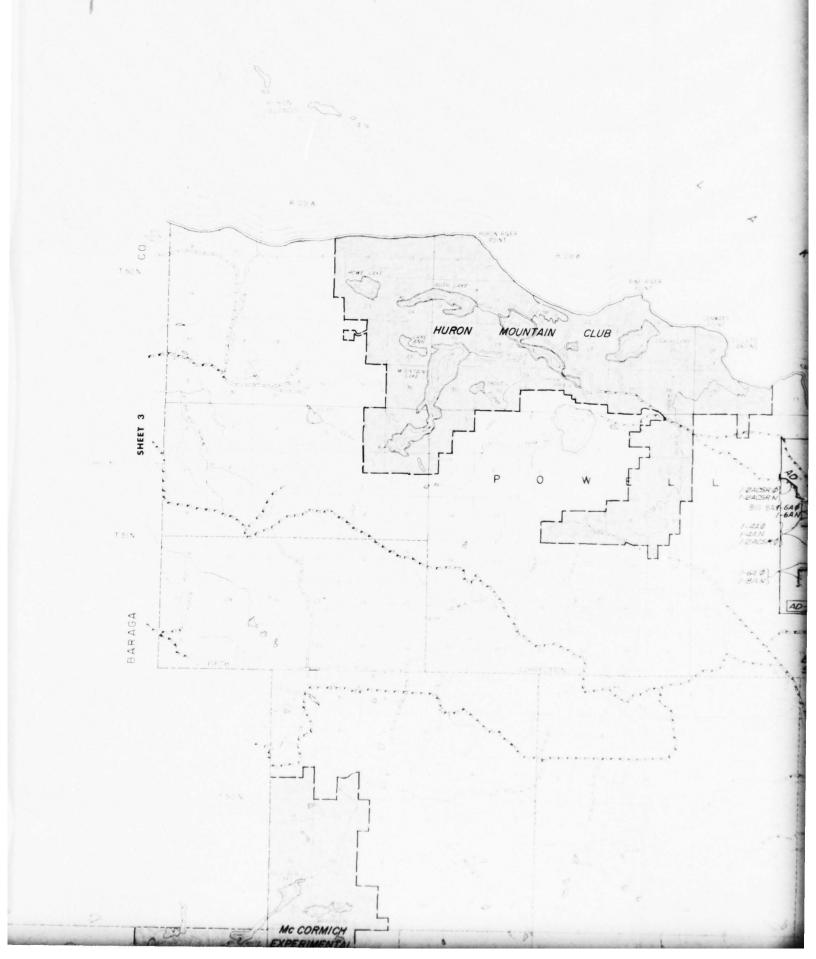


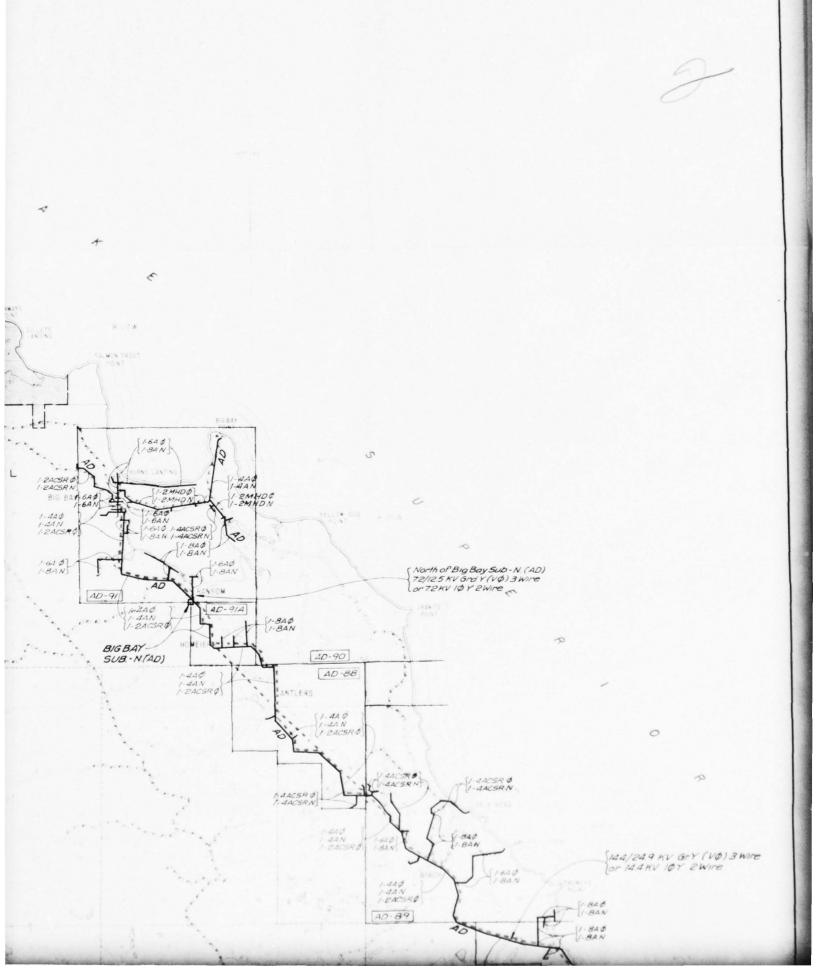




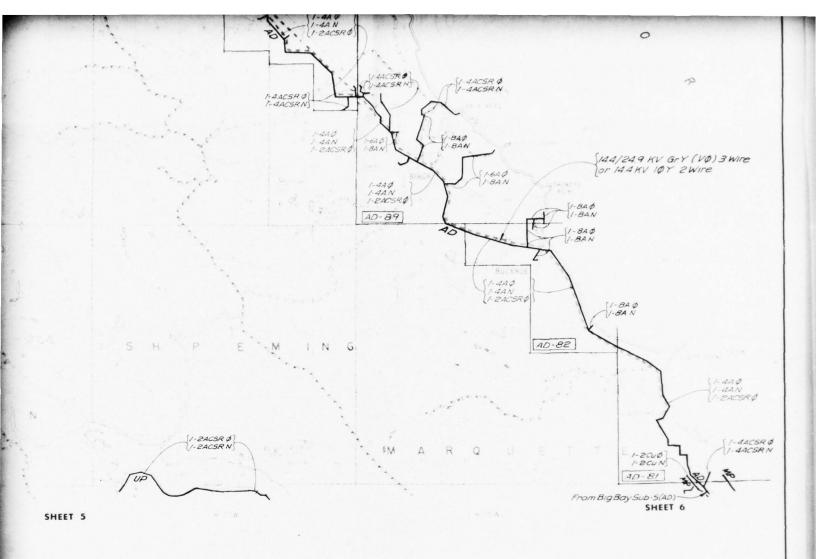


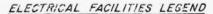






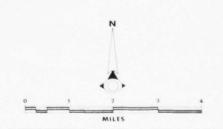
Mc CORMICH EXPERIMENTAL FOREST





EXCLUSION AREA GENERATION PLANT - NAME SUBSTATION - NAME SWITCHING STATION - NAME INTERCONNECTION 138 KV. 3 & LINES 69KV, 3 & LINES 33 KV, 3 & LINES 12.5KV,3 \$ LINES (OR 13.8KV OR 14.4KV) 7.2 KV, 1 & LINES ----- 24KV, 1 0 LINES UGD. UNDERGROUND LINES POWER CO. MAP REFERENCE NUMBER

UP UPPER PENINSULA POWER CO. WM WISCONSIN MICHIGAN POWER CO. MP MARQUETTE BOARD OF LIGHT AND POWER L'ANSE BOARD OF PUBLIC WORKS LA BARAGA BOARD OF PUBLIC WORKS 88 CRYSTAL FALLS LIGHT AND WATER DEPARTMENT CF ONTONAGON REA OR NE NORWAY ELECTRIC LIGHT DEPARTMENT AD ALGER DELTA REA KI SAWYER AIR FORCE BASE KI



PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

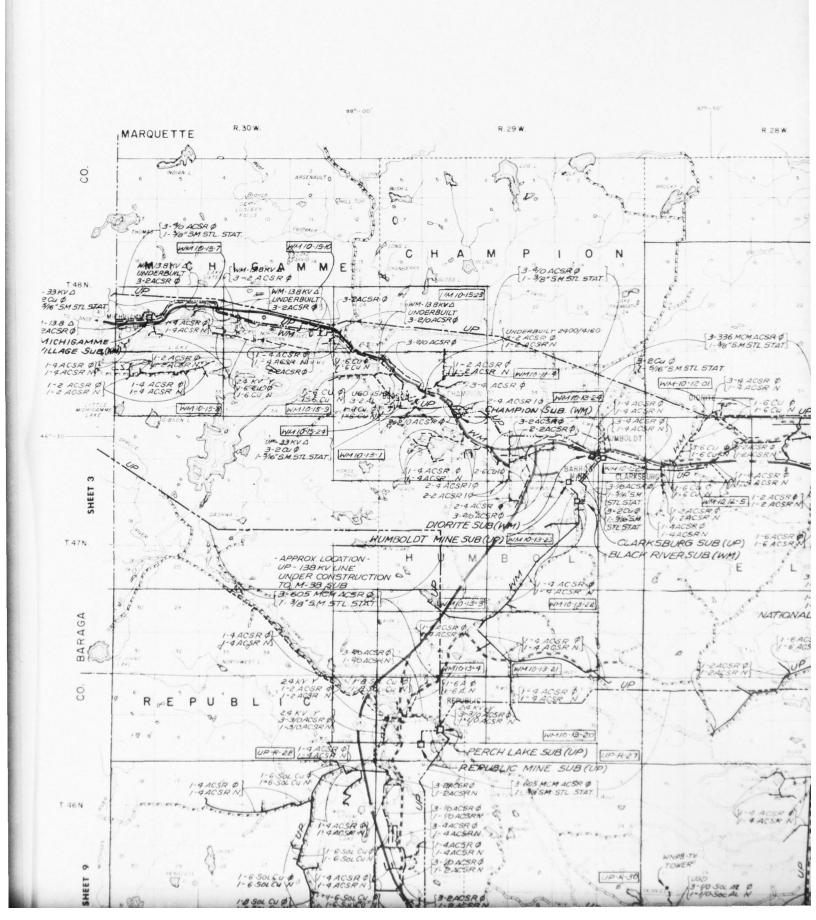
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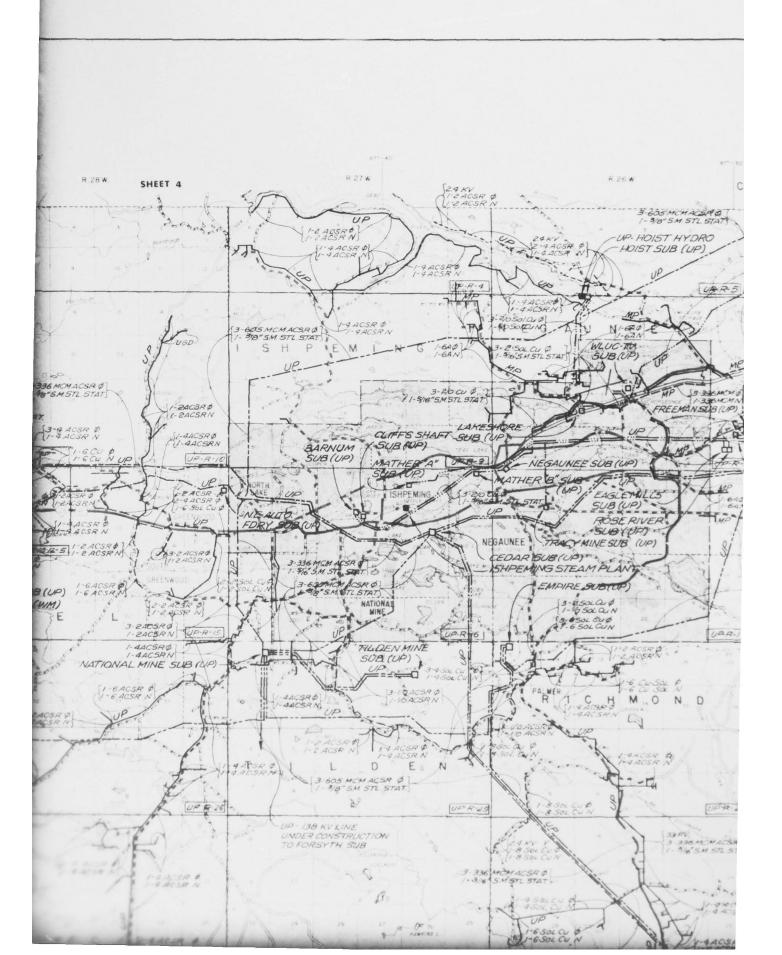
MARQUETTE COUNTY, MICHIGAN

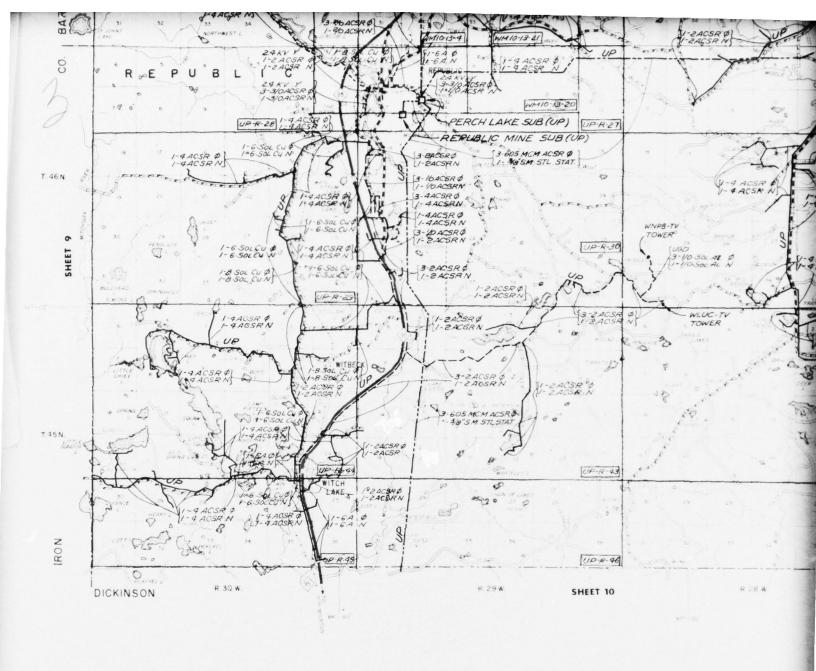


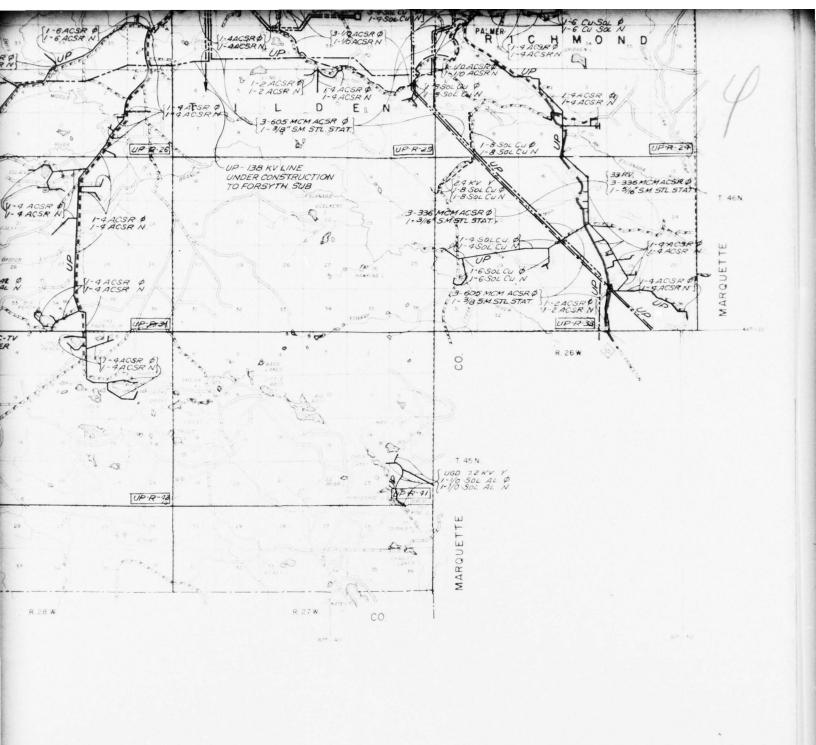
WILLIAMS & WORKS

DATE 3/5/76







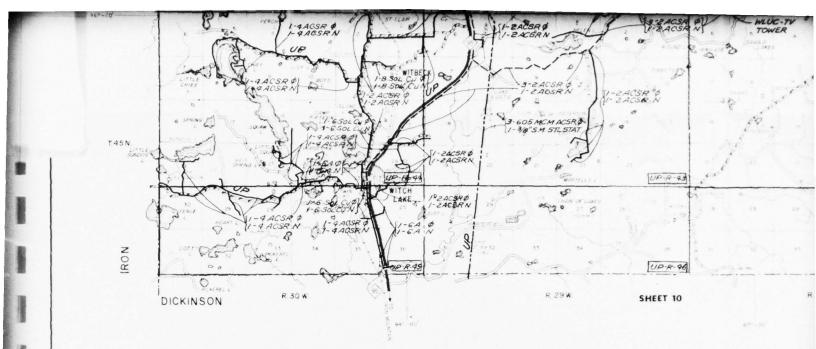


EXCLUSION AREA

GENERATION PLANT - NAME

SUBSTATION - NAME

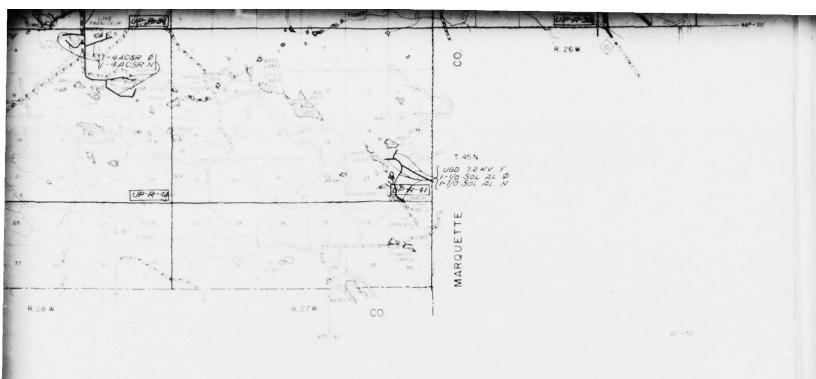
SWITCHING STATION - NAME



GENERAL HIGHWAY MAP
MARQUETTE COUNTY

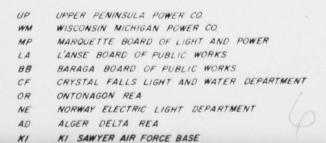
MICHIGAN STATE HIGHWAY COMMISSION DEPARTMENT OF STATE HIGHWAYS STATE OF STATE HIGHWAY STATE OF STATE O

US DEPARTMENT OF THANSPORTATION FEDERAL HISTORY AUMINISTRATION



ELECTRICAL FACILITIES LEGEND

EXCLUSION AREA GENERATION PLANT - NAME SUBSTATION VAME SWITCHING STATION - NAME INTERCONNECTION 138 KV, 3 0 LINES 69KV, 3 0 LINES 33 KV, 3 & LINES 12.5KV,3 0 LINES (OR 13 8KV OR 14.4KV) 7.2 KV, I & LINES 2.4 KV, I & LINES UGD. UNDERGROUND LINES POWER CO. MAP REFERENCE NUMBER (MP MAP REFERENCE IS BY SECTION, TWP. & RANGE





PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

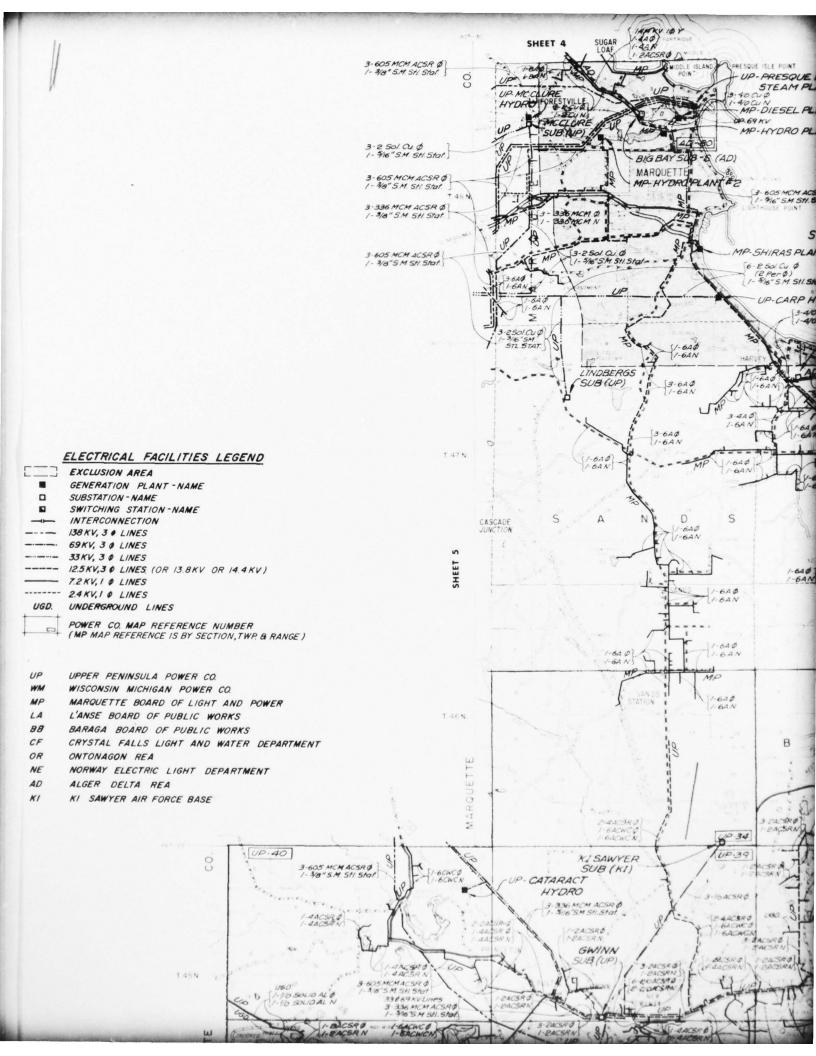
FOR GTE, SYLVANIA INC. SUBCONTRACT NO. CSD-C-75-1048

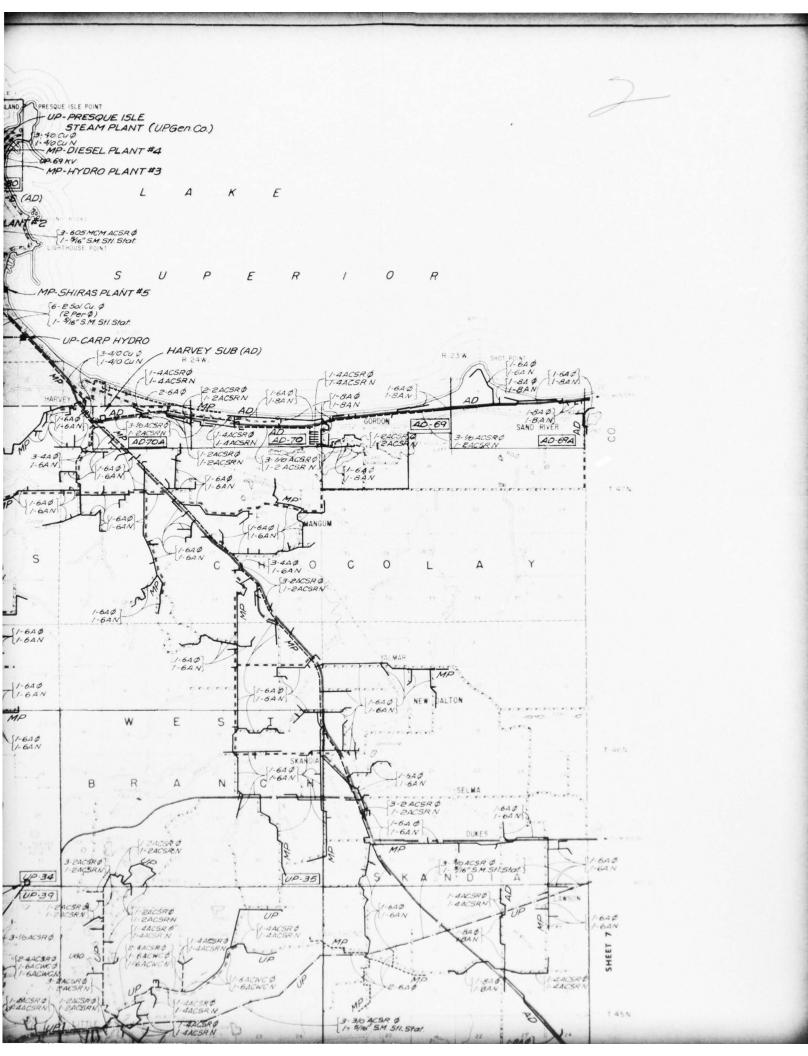
ELECTRICAL FACILITIES LOCATION MARQUETTE COUNTY, MICHIGAN

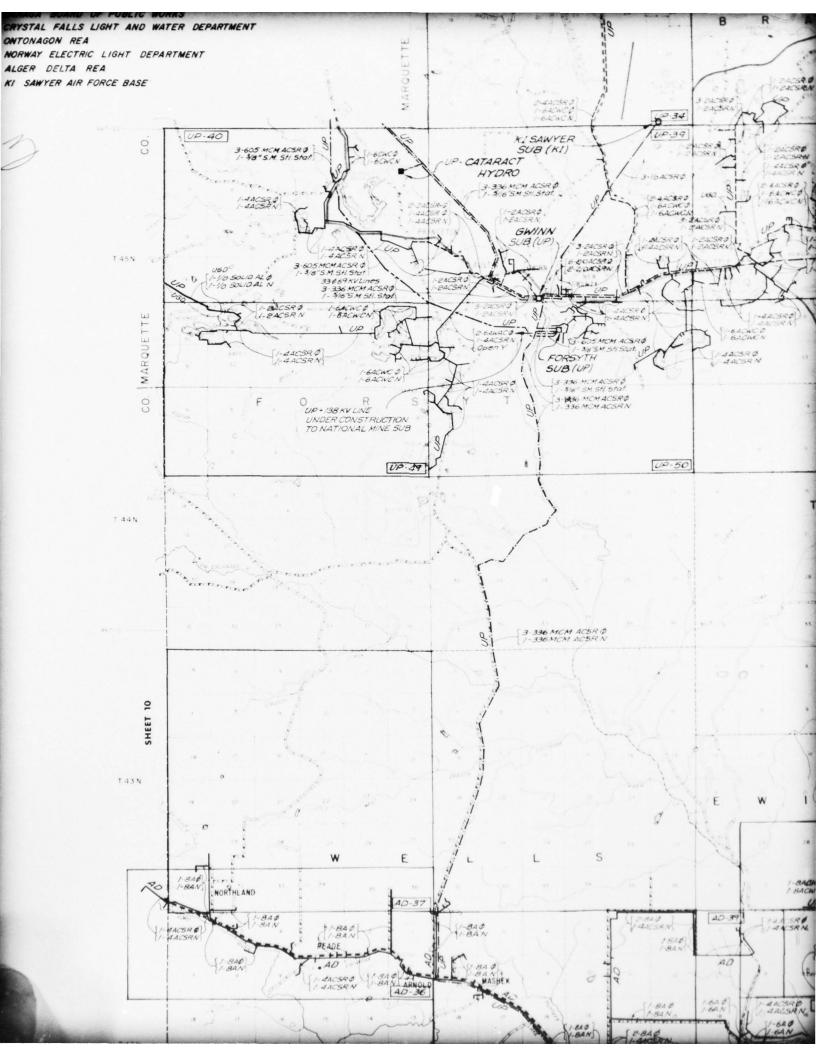


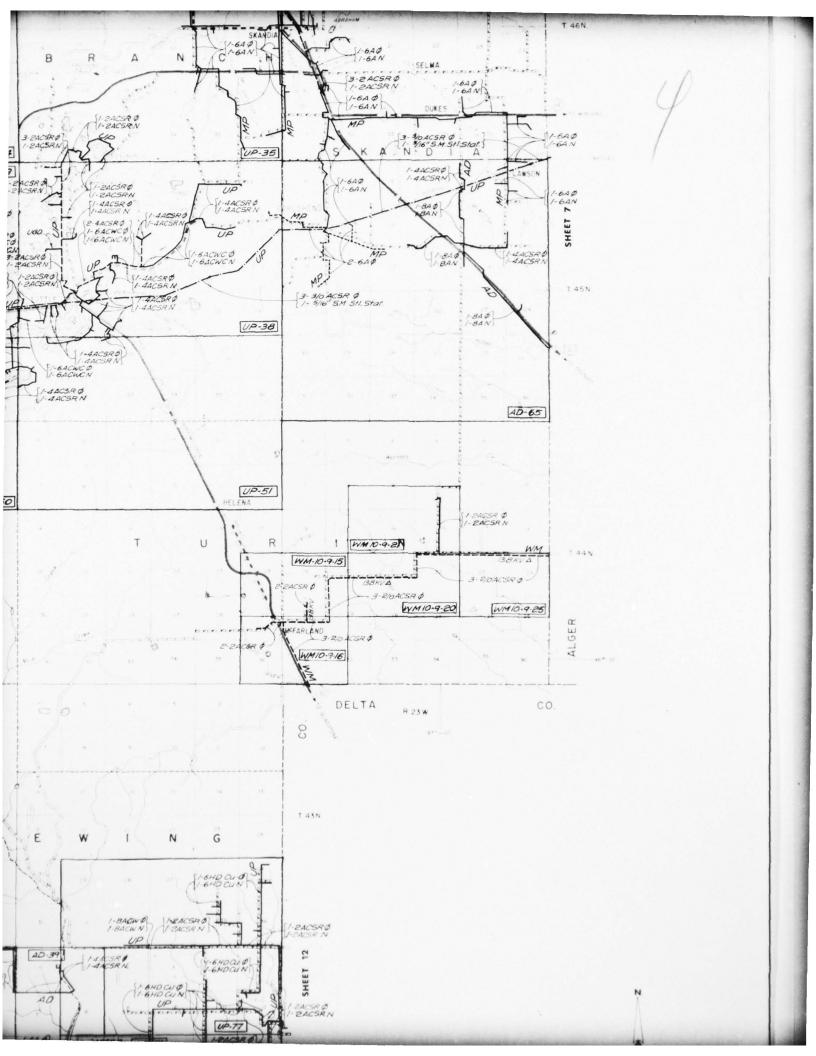
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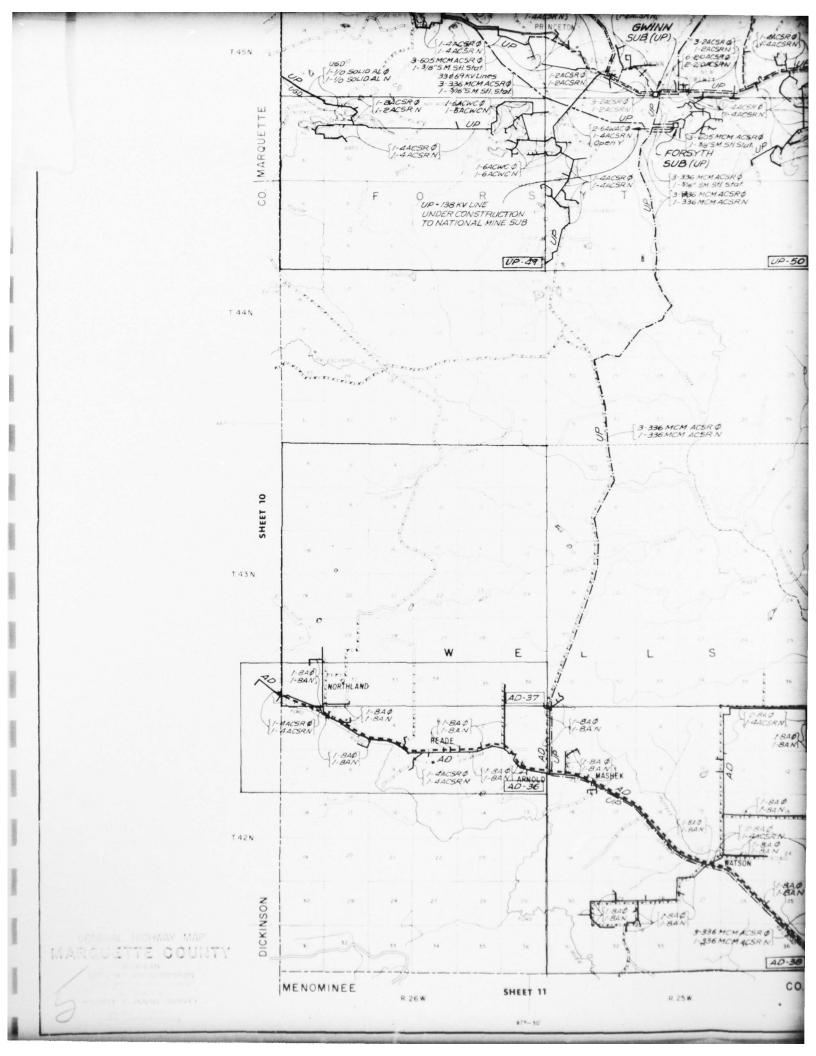
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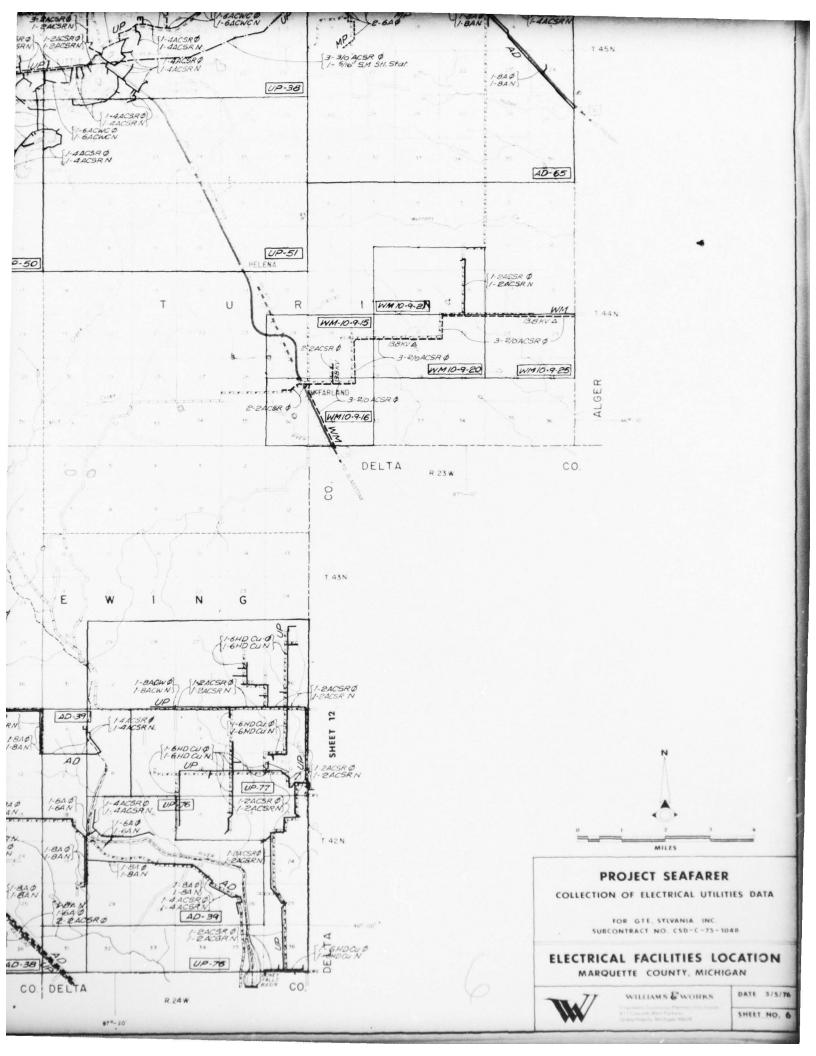


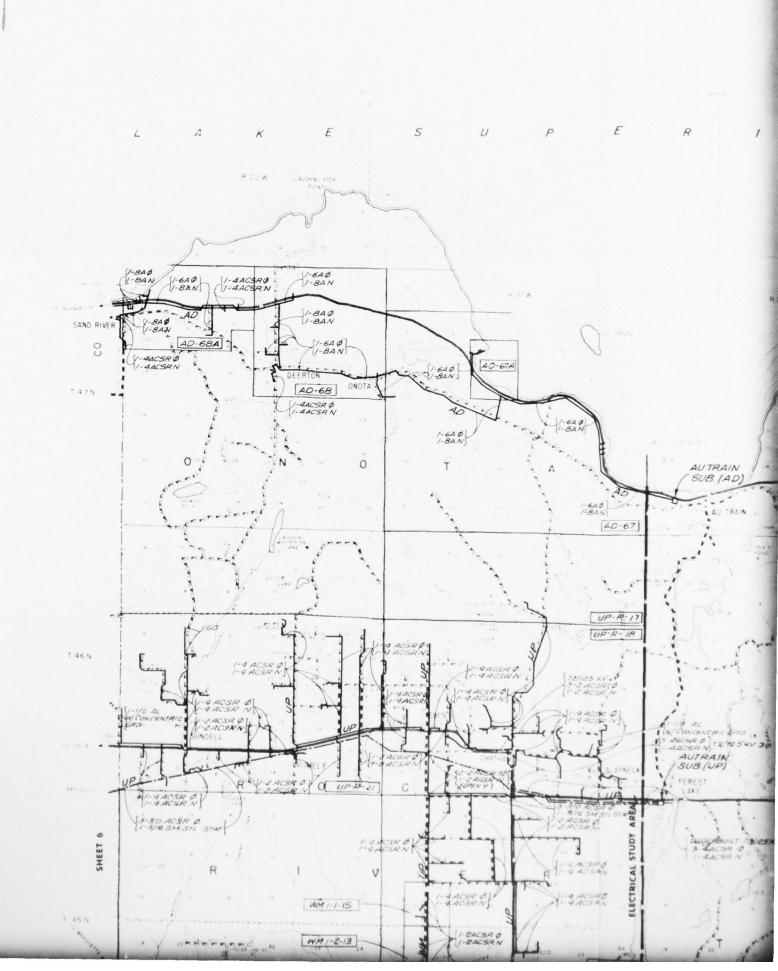


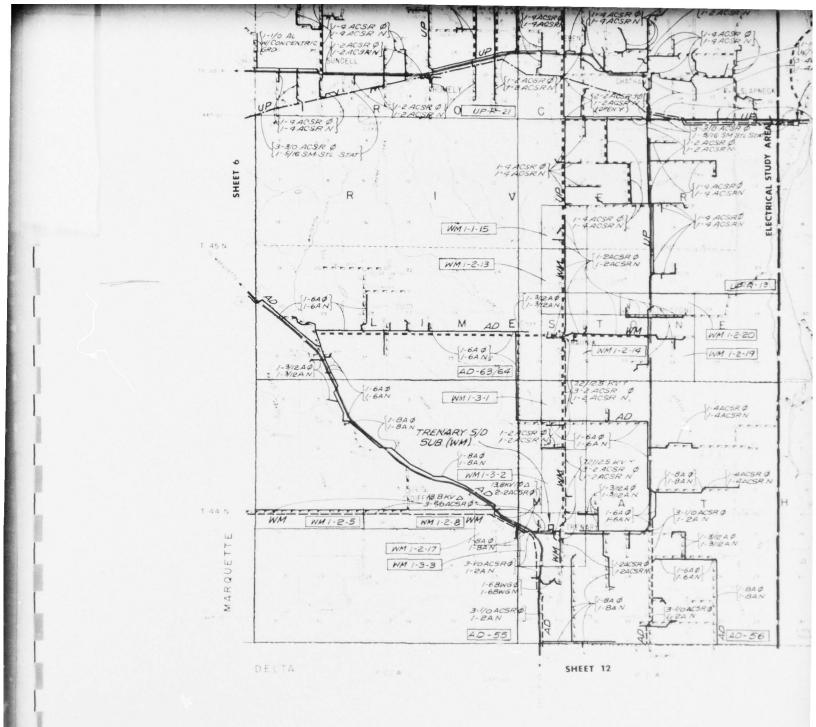








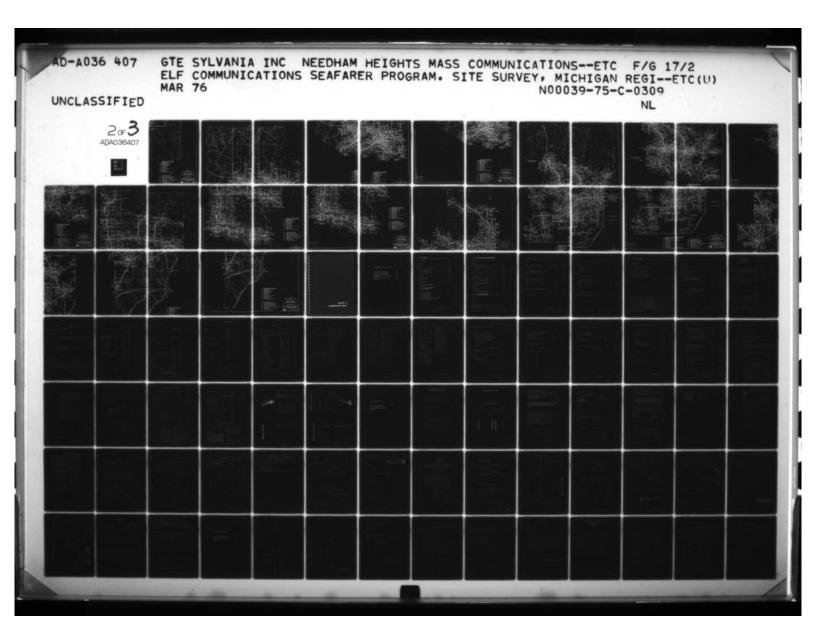




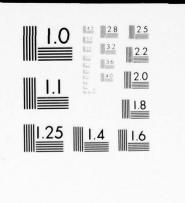
ALGER COUNTY

MICHIGAN STATE HICKMAY COMMISSION

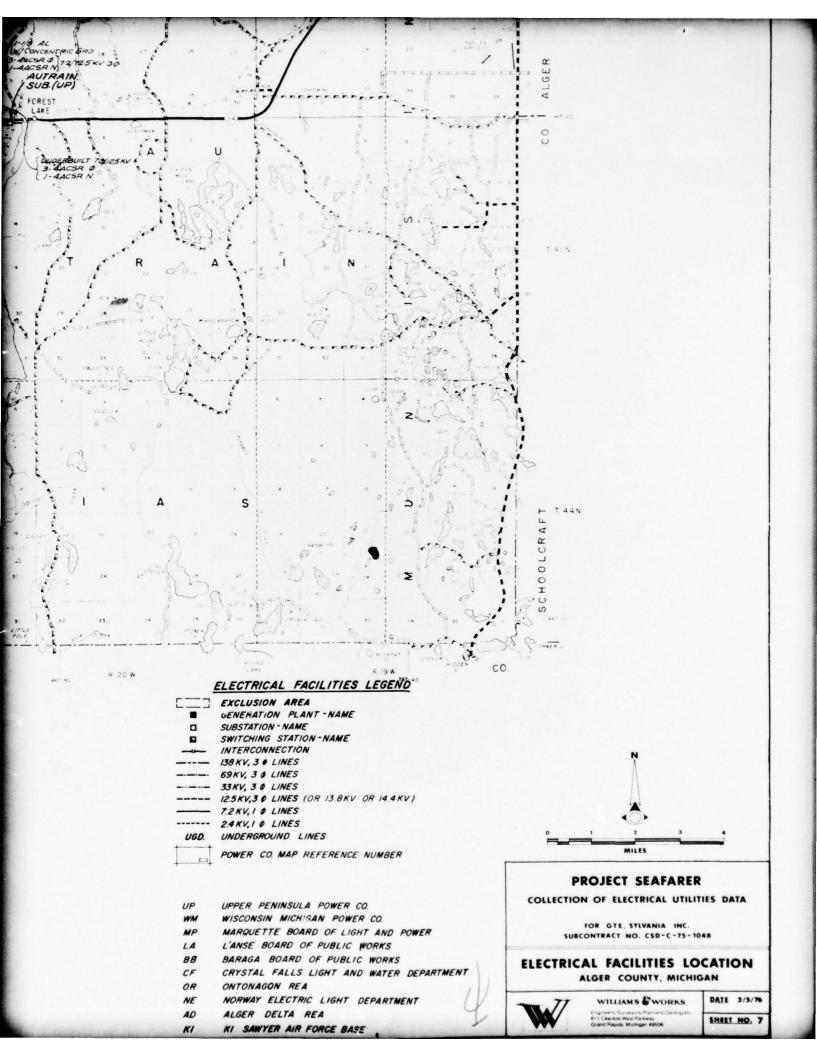
HIGHWAY PLANNING SURVEY

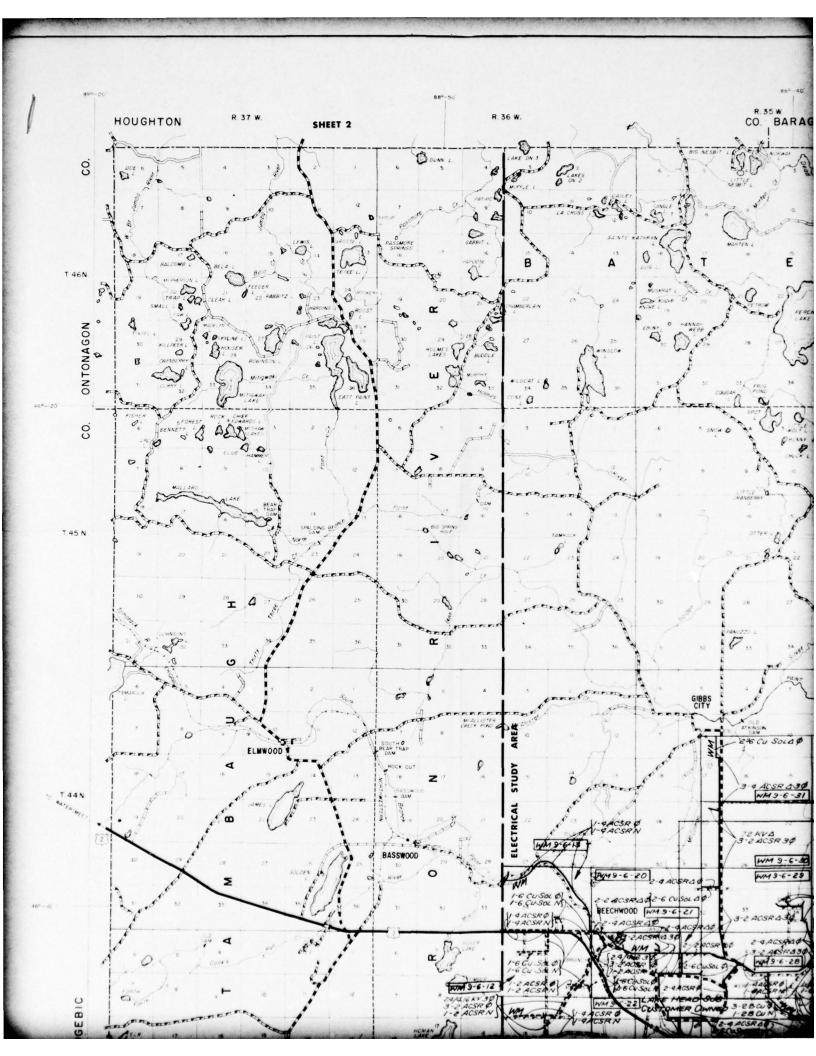


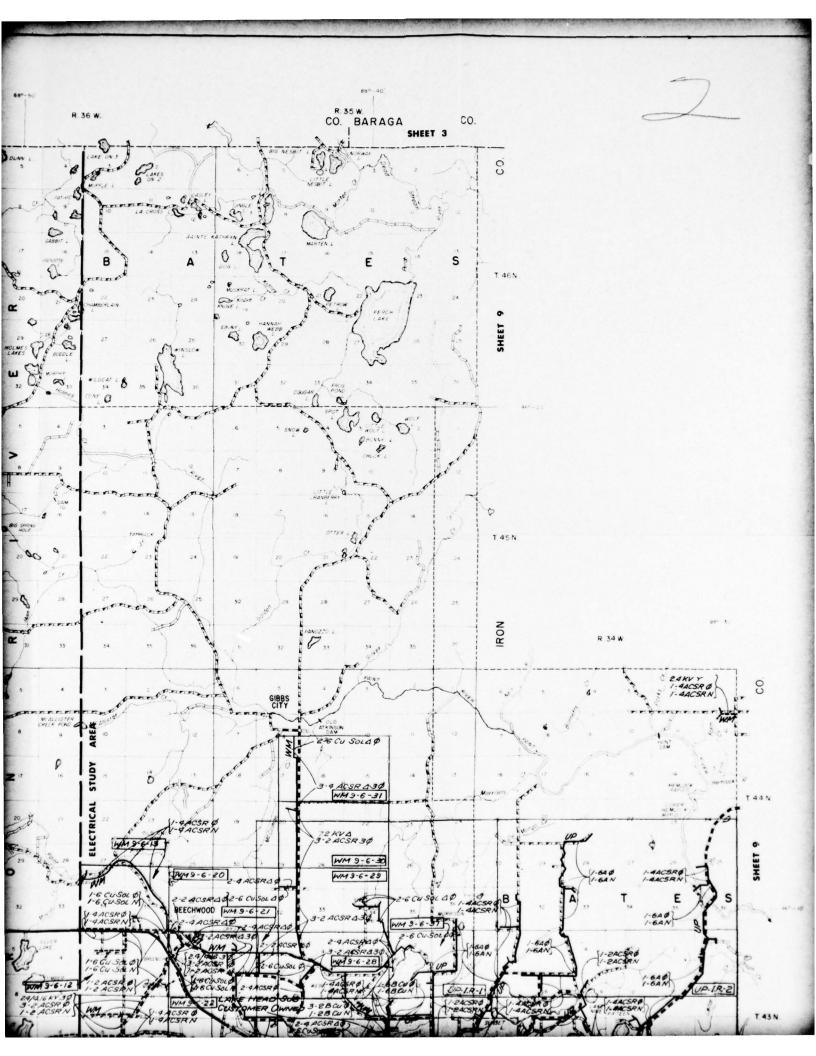
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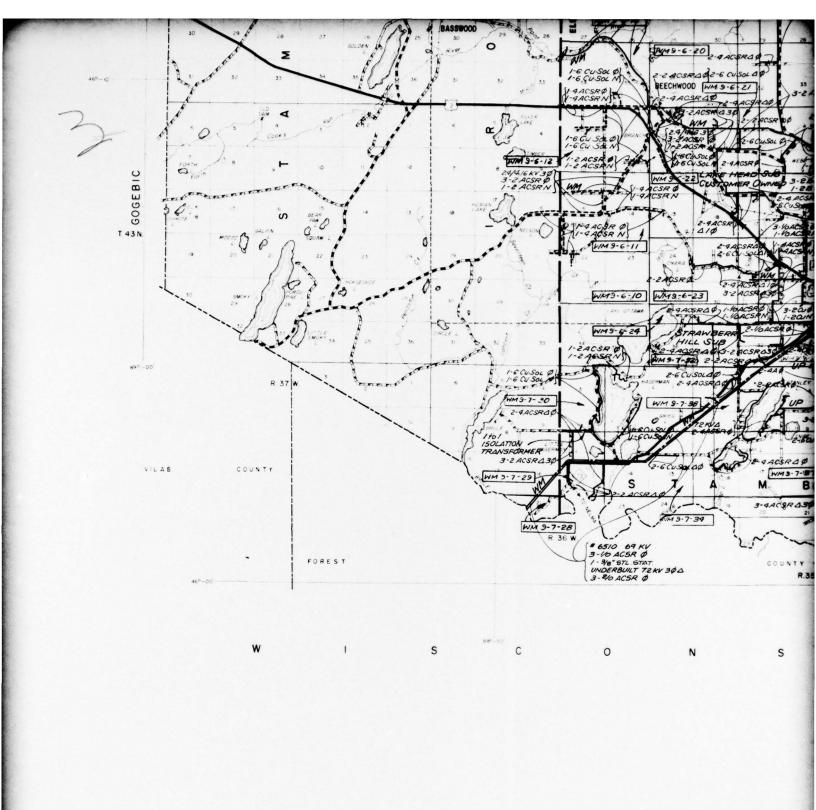


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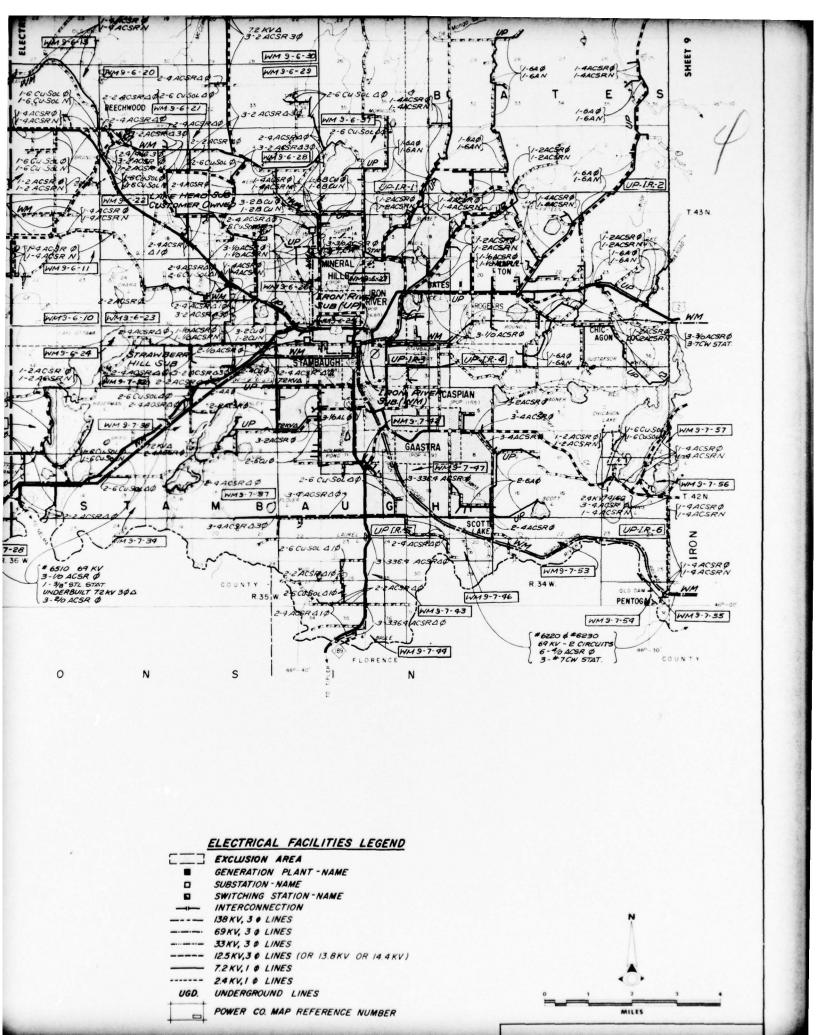


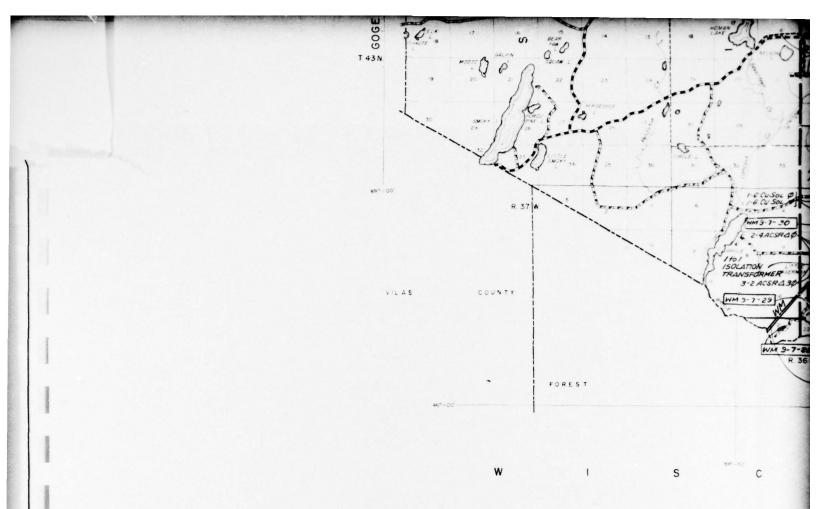












GENERAL HIGHWAY MAP

IRON COUNTY

MICHIGAN

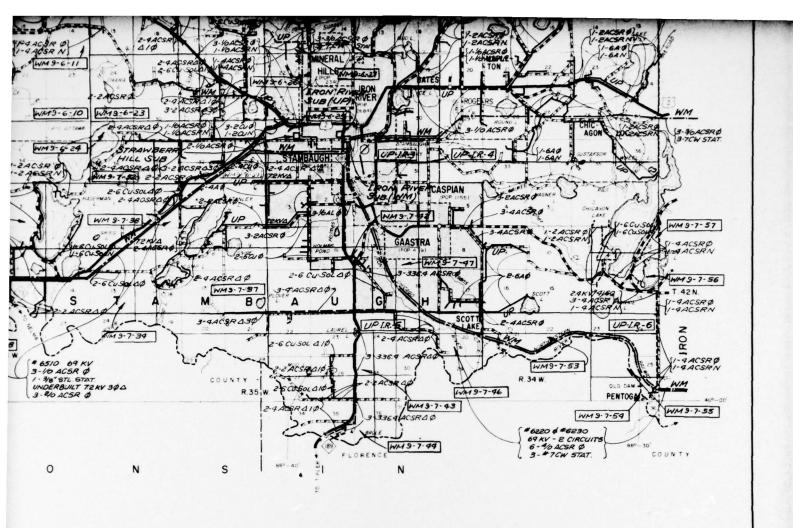
STATE HIGHWAY COMMISSION

DEPARTMENT OF STATE HIGHWAYS

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HIGHWAY PLANNING SURVEY

US DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION



ELECTRICAL FACILITIES LEGEND

EXCLUSION AREA

GENERATION PLANT - NAME

SUBSTATION - NAME

SWITCHING STATION - NAME

INTERCONNECTION

138 KV, 3 0 LINES

69 KV, 3 0 LINES

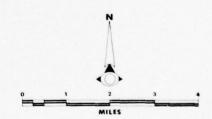
12.5 KV, 3 0 LINES

12.5 KV, 3 0 LINES

7.2 KV, 1 0 LINES

UGD. UNDERGROUND LINES

POWER CO. MAP REFERENCE NUMBER



UP UPPER PENINSULA POWER CO.

WM WISCONSIN MICHIGAN POWER CO.
MP MARQUETTE BOARD OF LIGHT AN

MARQUETTE BOARD OF LIGHT AND POWER

LA L'ANSE BOARD OF PUBLIC WORKS
BB BARAGA BOARD OF PUBLIC WORKS

CF CRYSTAL FALLS LIGHT AND WATER DEPARTMENT

OR ONTONAGON REA

NE NORWAY ELECTRIC LIGHT DEPARTMENT

AD ALGER DELTA REA

KI KI SAWYER AIR FORCE BASE

PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

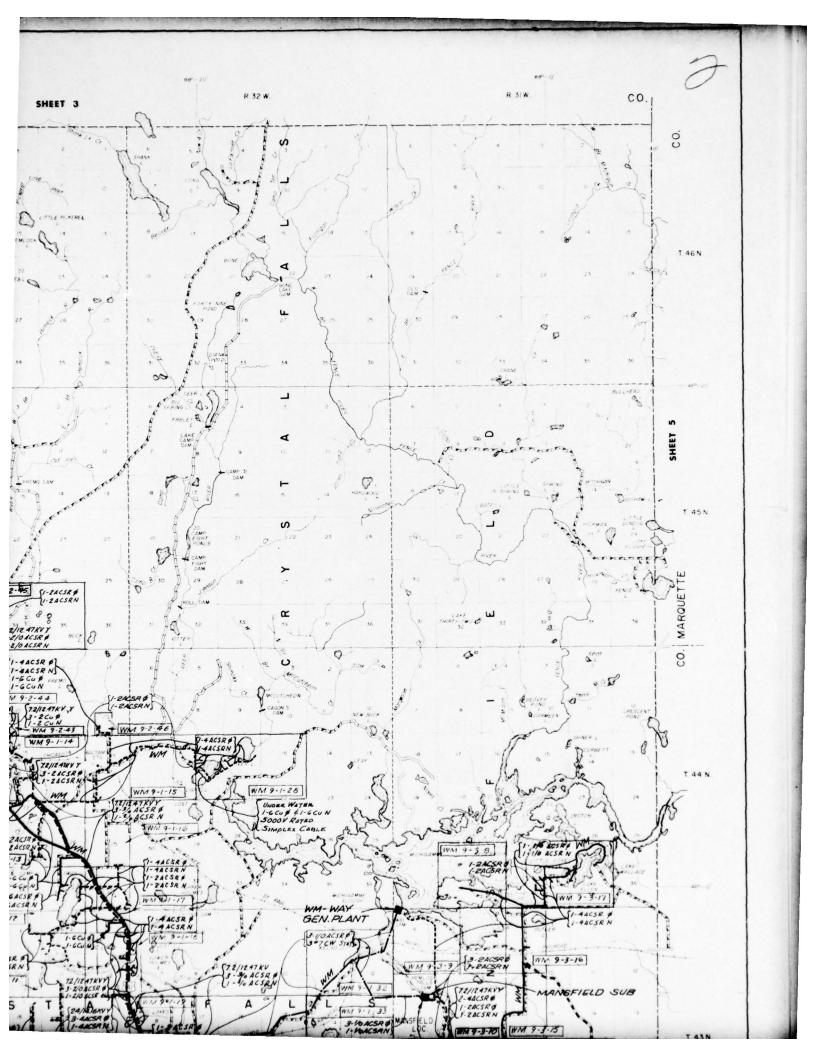
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SUBCONTRACT NO. CSD-C-75-1048

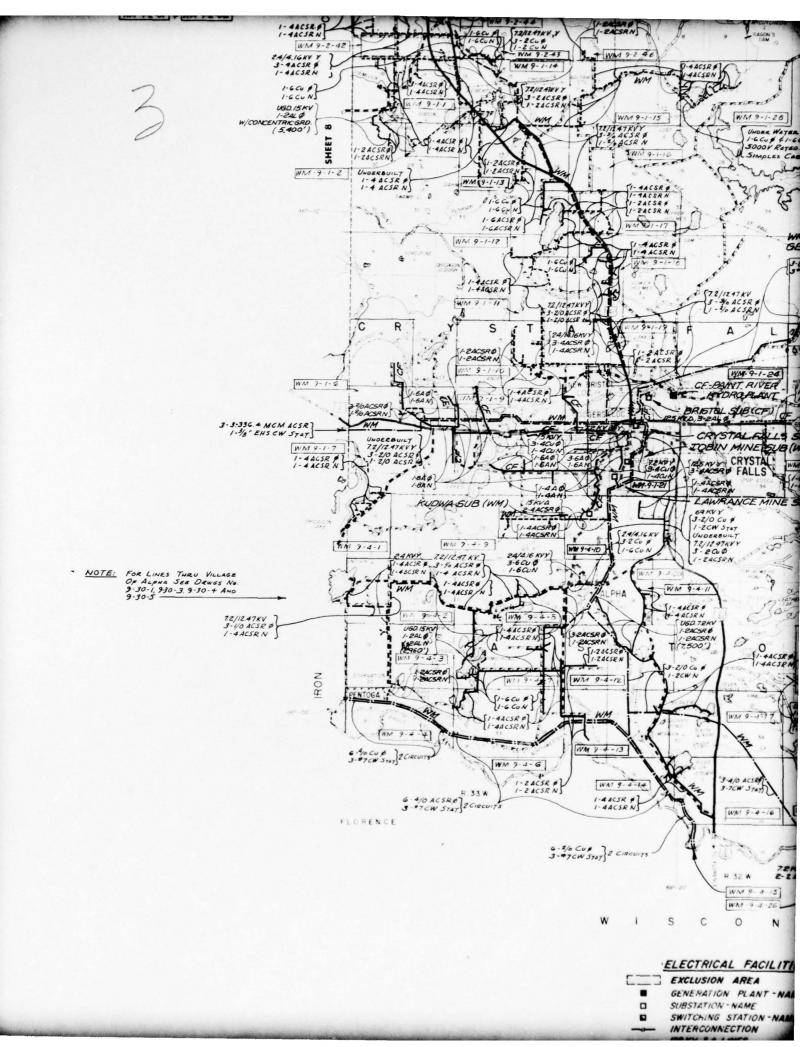
IRON COUNTY, MICHIGAN

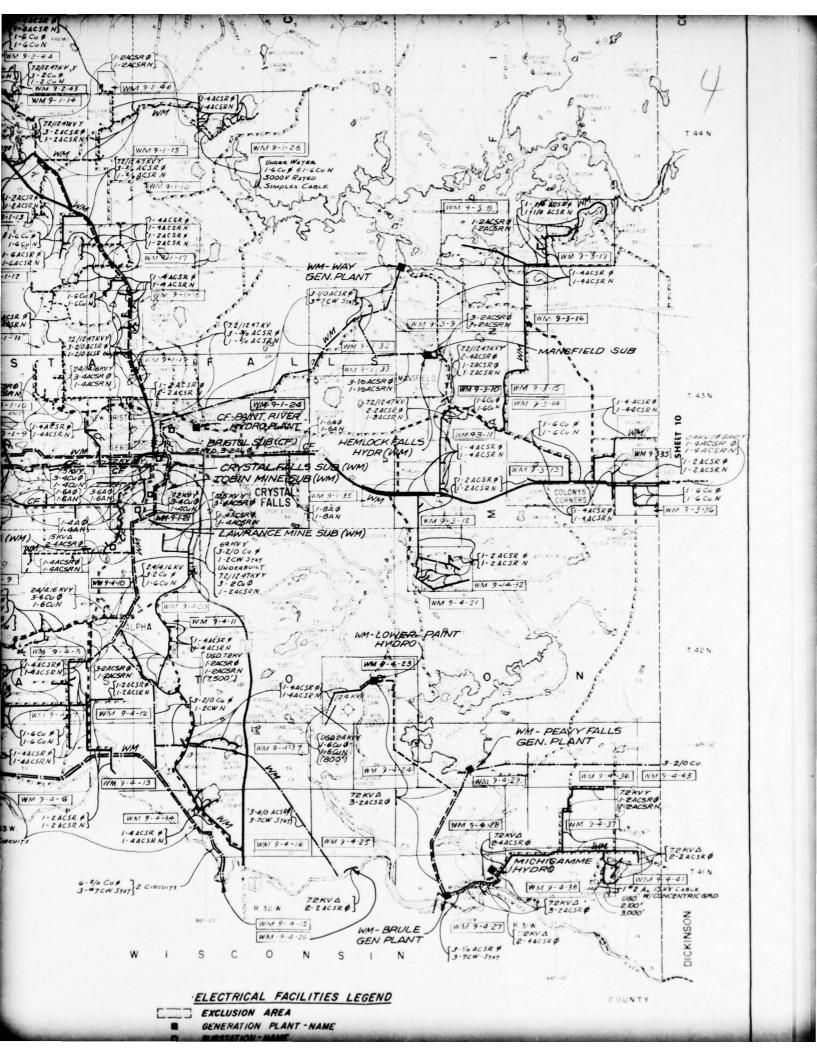


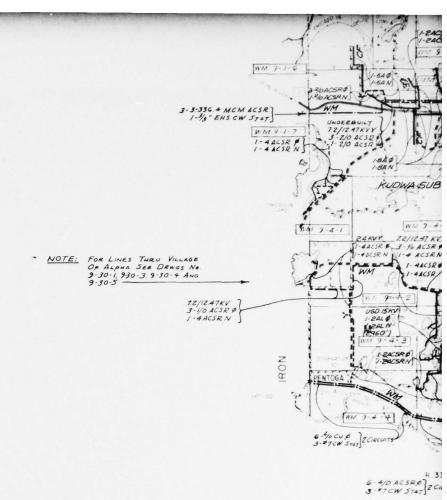
WILLIAMS & WORKS
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11 Castade West Parkway

DATE 3/5/76









FLORENCE

SENERAL HIGHWAY MAP

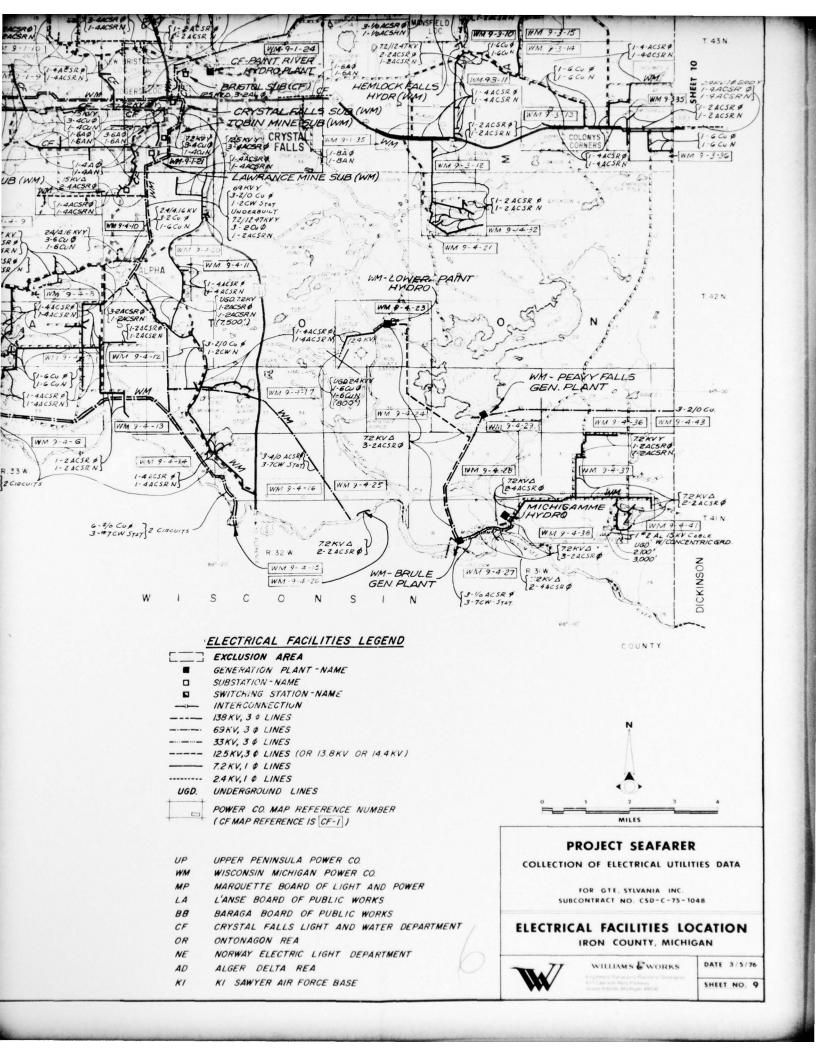
IRON COUNTY

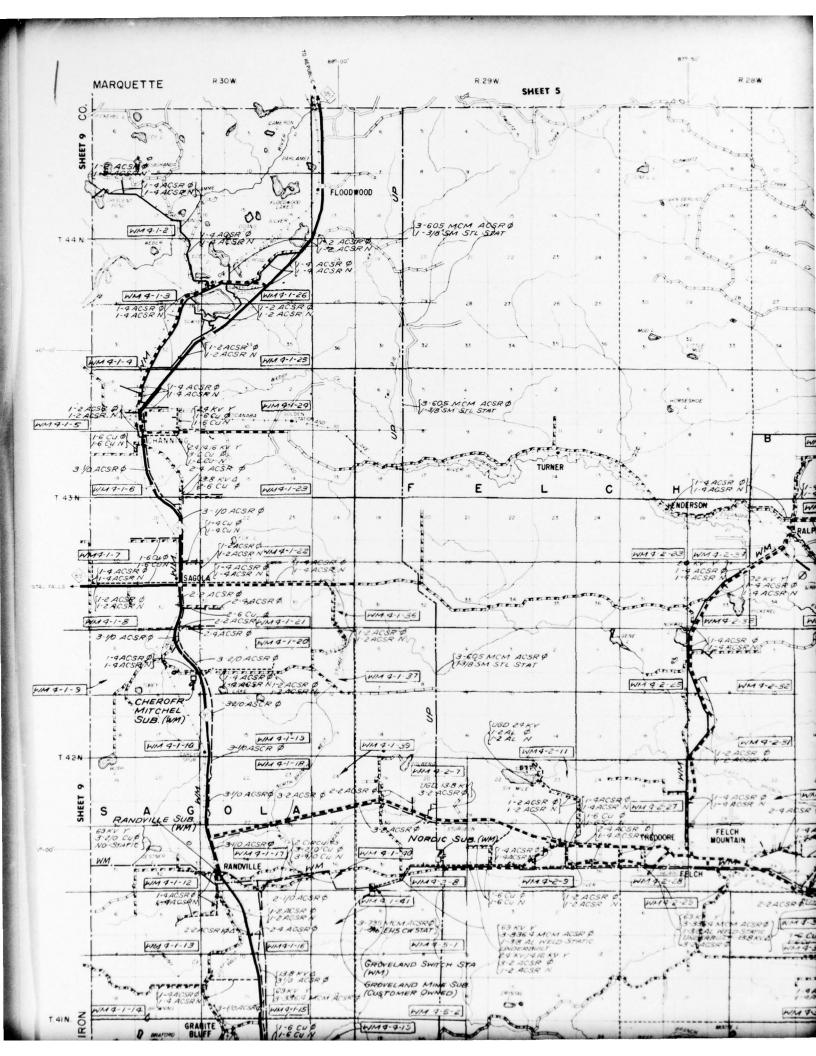
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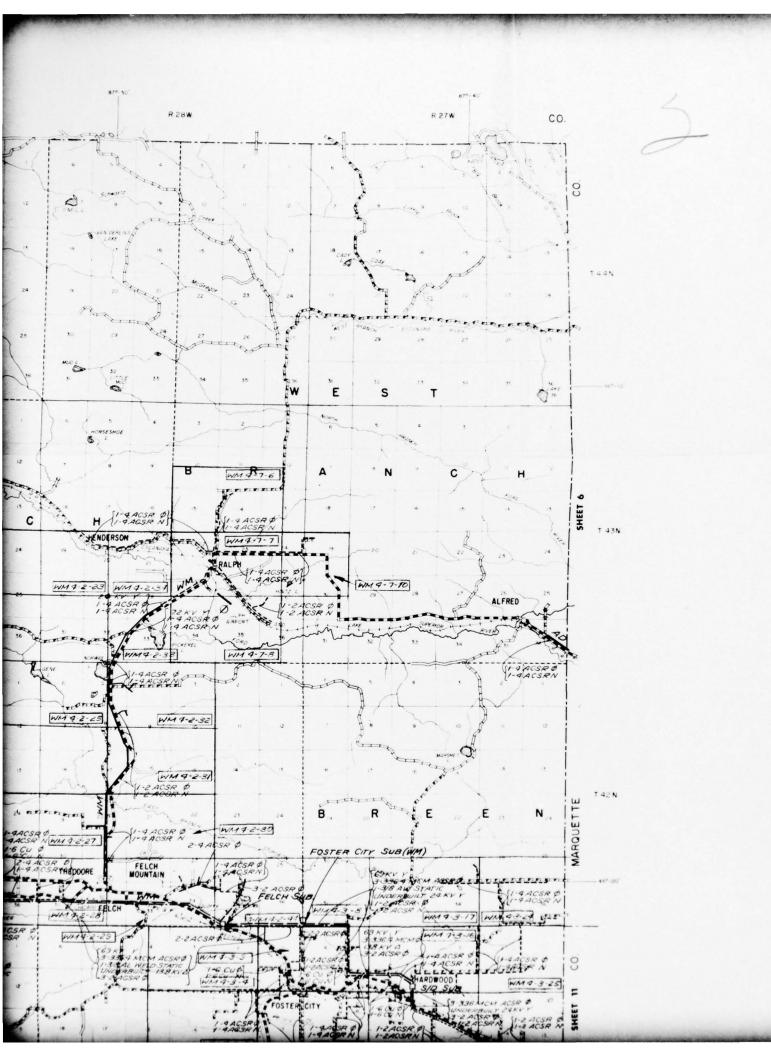
STATE HIGHWAY COMMISSION

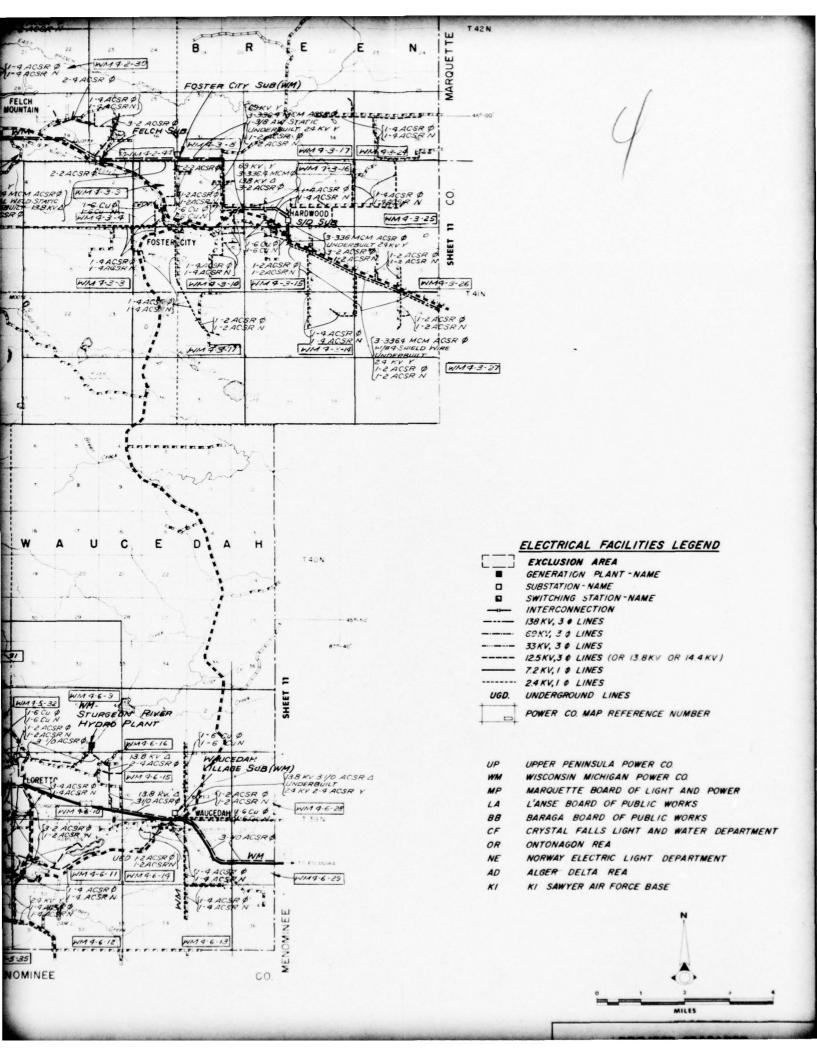
DEPARTMENT OF STATE HIGHWAYS

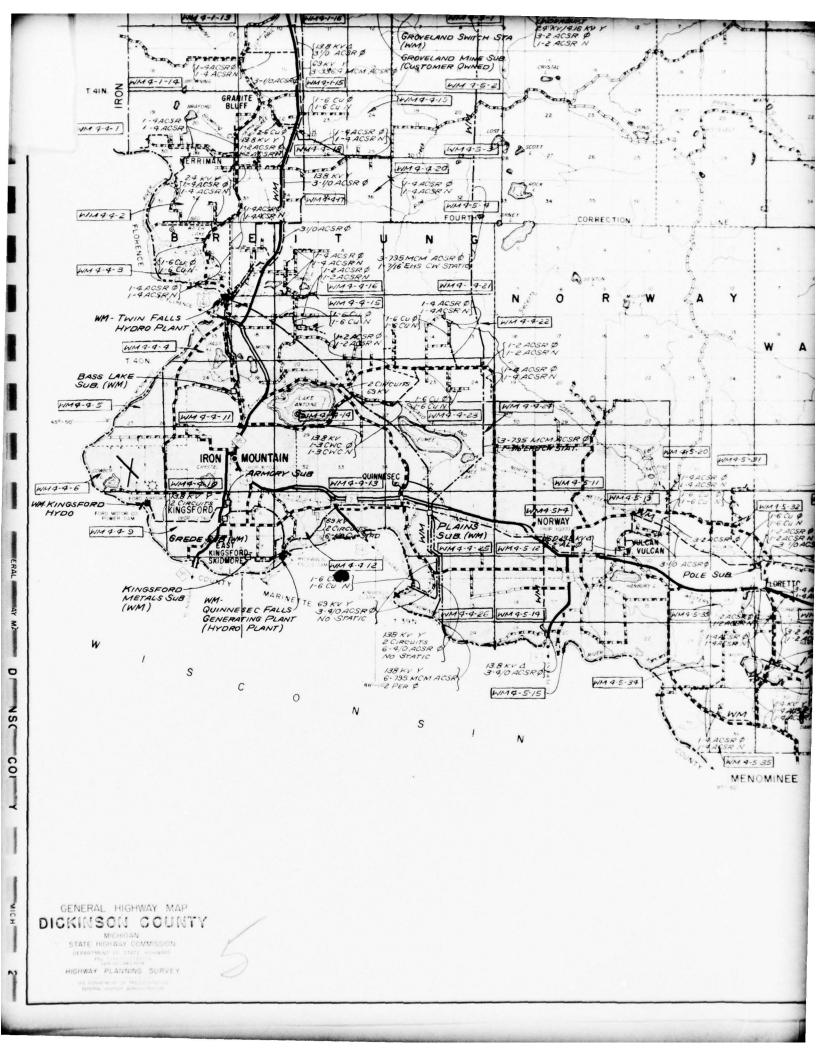
HIGHWAY PLANNING SURVEY

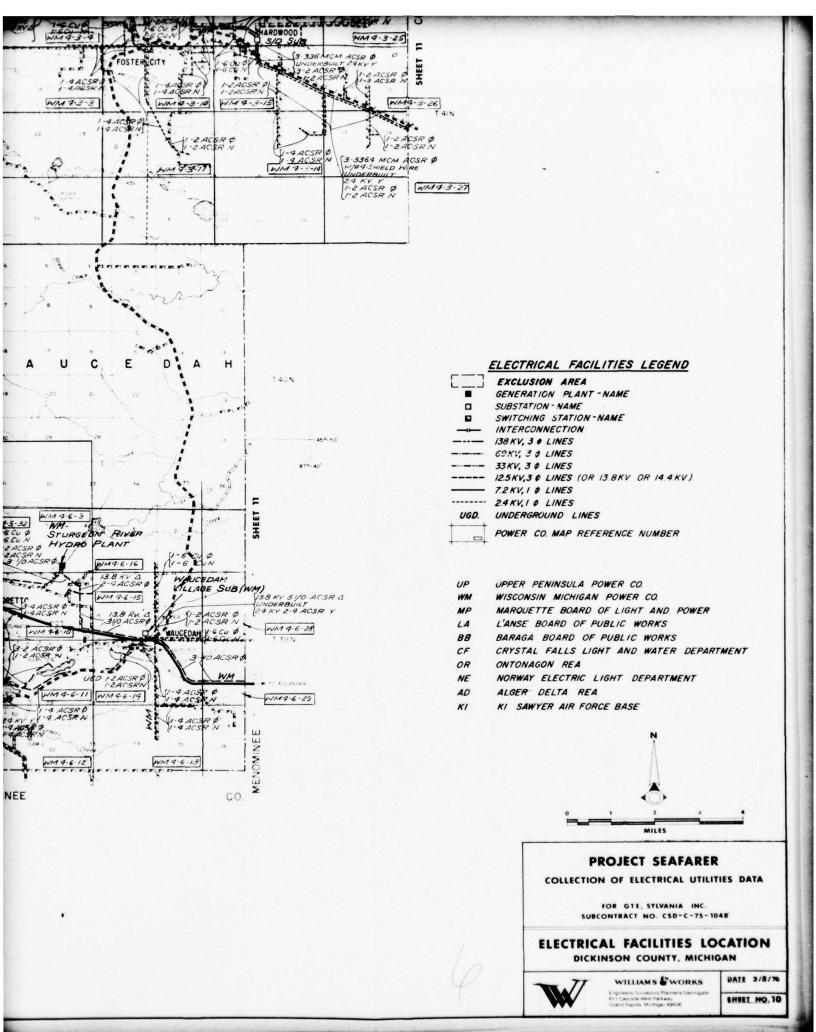


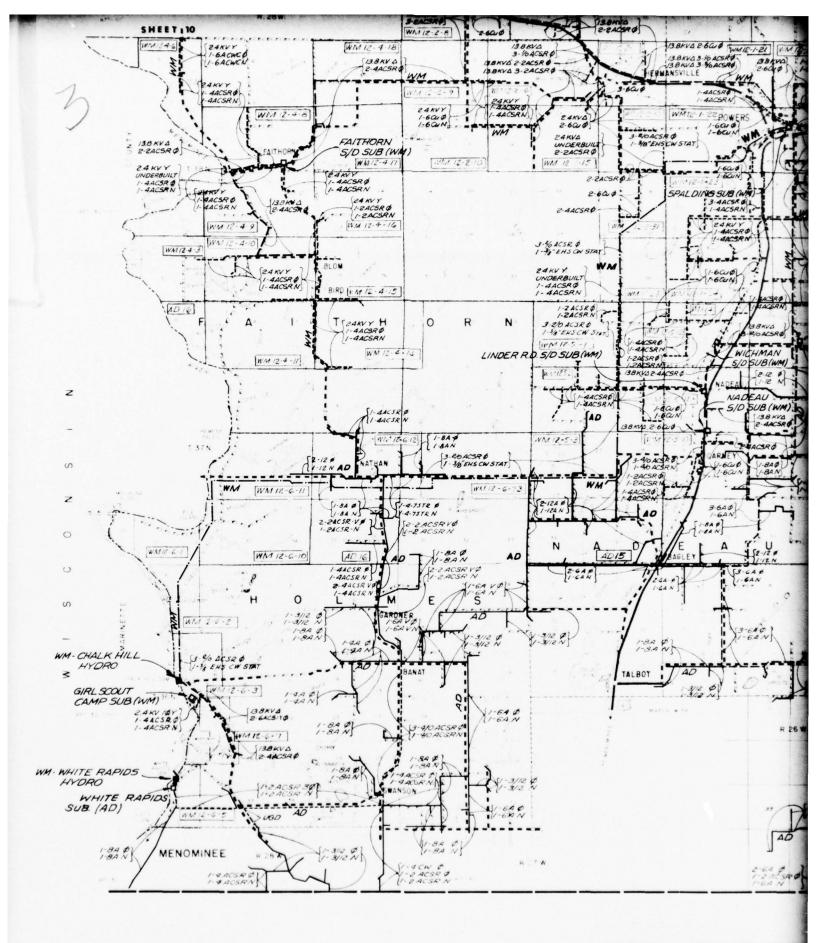












ELECTRICAL FACILITIES LEGEN

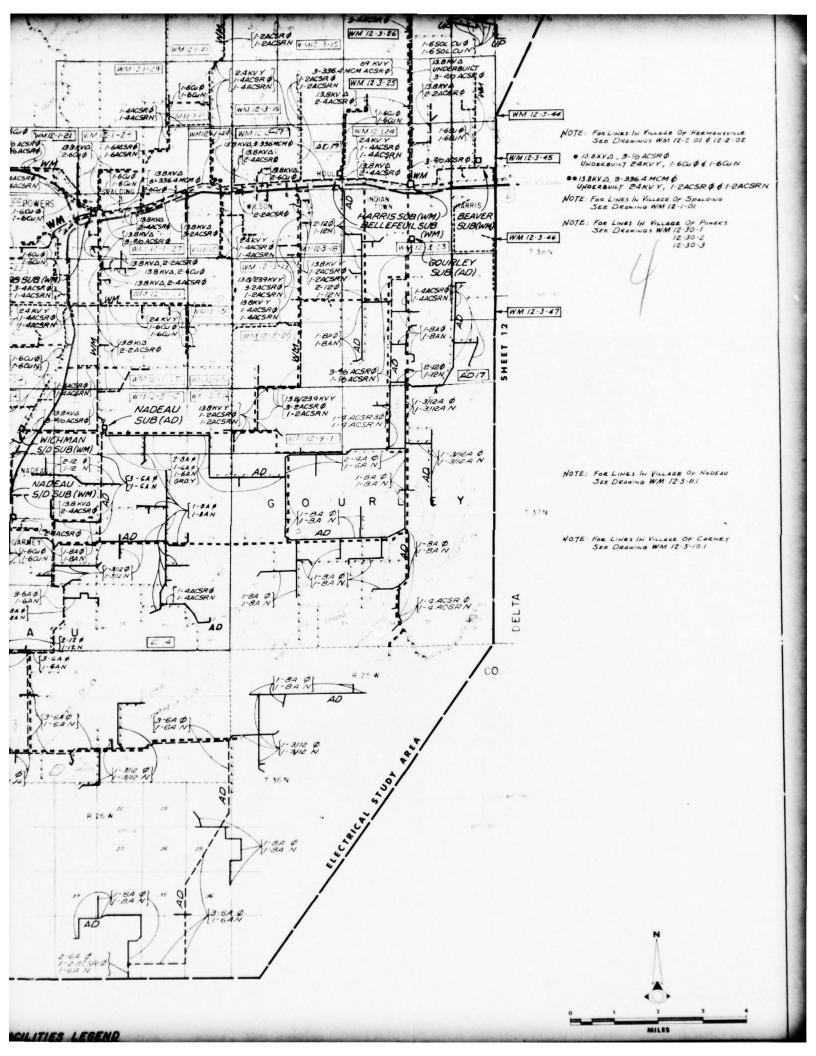
EXCLUSION AREA

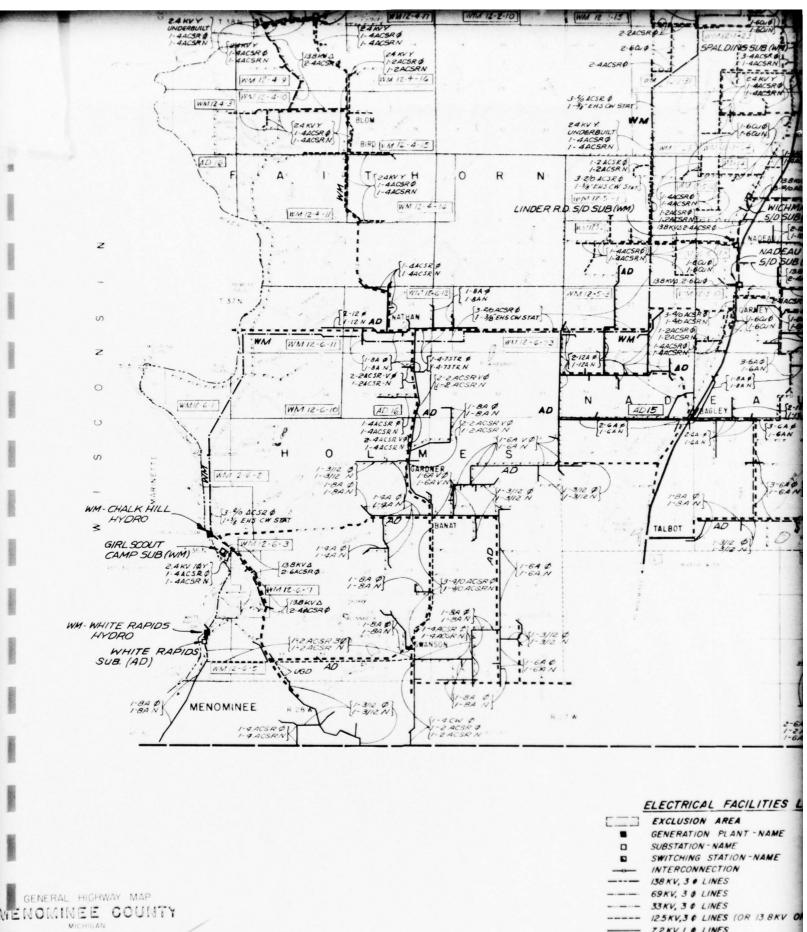
GENERATION PLANT - NAME

SUBSTATION - NAME

SWITCHING STATION - NAME

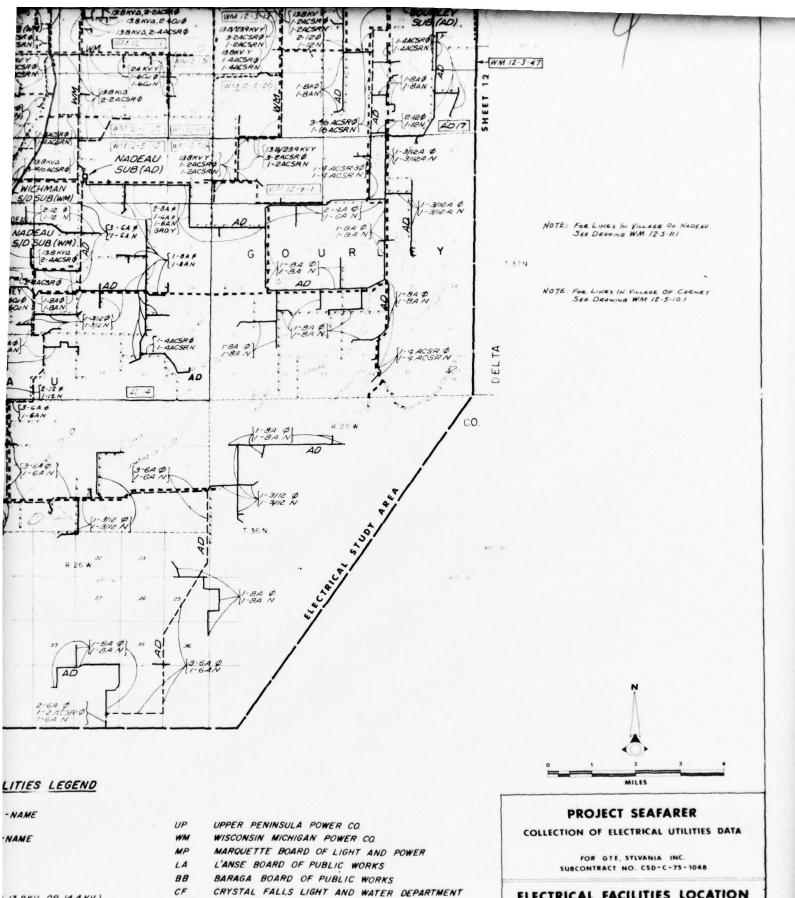
INTERCONNECTION





STATE HIGHWAY COMMISSION HIGHWAY PLANNING SURVEY

7.2 KV, I & LINES 2.4 KV, I & LINES UGD. UNDERGROUND LINES POWER CO MAP REFERENCE N



13.8KV OR 14.4KV)

ERENCE NUMBER

ONTONAGON REA

ALGER DELTA REA

KI SAWYER AIR FORCE BASE

NORWAY ELECTRIC LIGHT DEPARTMENT

OR

NE

AD

KI

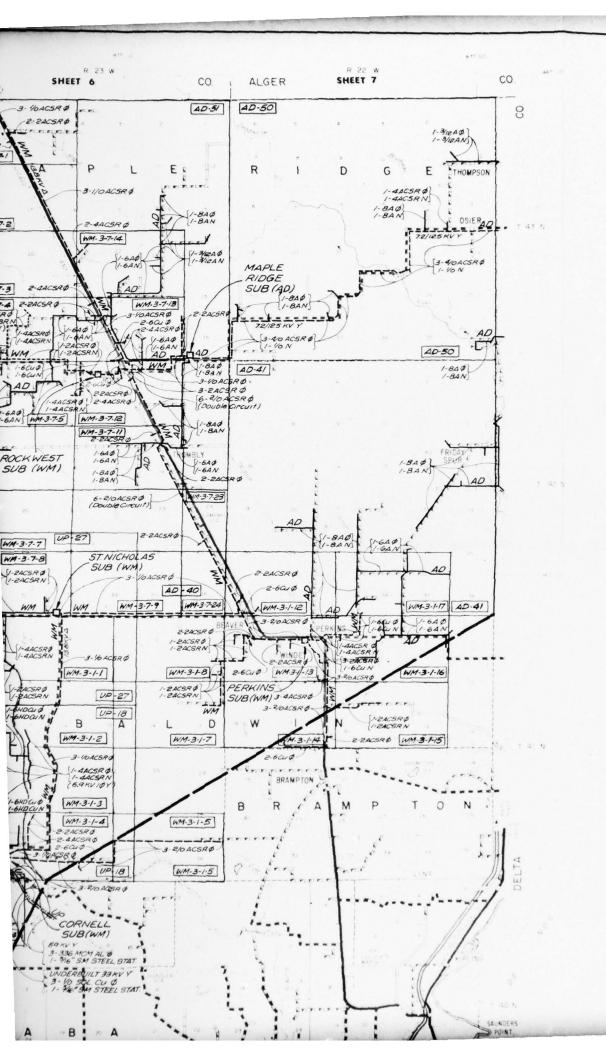
ELECTRICAL FACILITIES LOCATION
MENOMINEE COUNTY, MICHIGAN

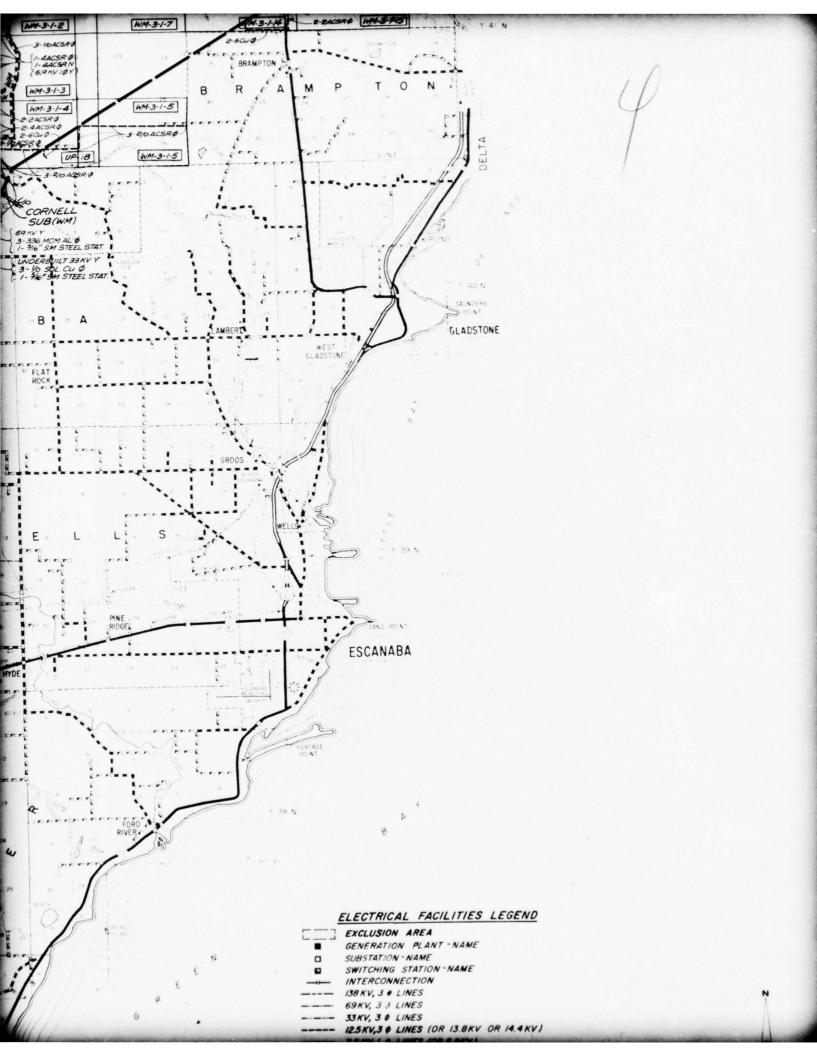


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Enginees Surveyors Penners/Geologis
611 Cascede West Perkeny
Grand Rapids Michigan 49506

DATE 3/5/76

SHEET NO. 11

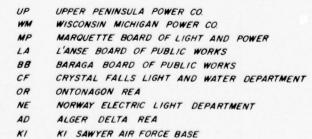


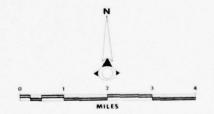


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ELECTRICAL FACILITIES LEGEND





PROJECT SEAFARER

COLLECTION OF ELECTRICAL UTILITIES DATA

FOR GTE, SYLVANIA INC.
SUBCONTRACT NO. CSD-C-75-1048

ELECTRICAL FACILITIES LOCATION DELTA COUNTY, MICHIGAN



WILLIAMS & WORKS

DATE 3/5/76

SHEET NO. 12

section 4 supplemental data

4.1 - POWER COMPANIES' FINANCIAL STATEMENTS

	Page
Upper Peninsula Power Company	4-1
Wisconsin Michigan Power Company	4-9
Marquette Board of Light and Power	4-16
Ontonagon County Rural Electrification Association	4-24
Alger Delta Cooperative Electrical Association	4-26

Income Statement

Year Ended December 31	1974	
Operating Revenues	\$21,805,618	\$18,821,923
Operating Expenses:		
Operation	13,971,517	10,175,266
Maintenance	1,074,937	1,371,788
Depreciation	1,442,461	
Taxes:	1,267,350	
Other Than Income — Principally Property Taxes	140.273	
Federal Income — Current	41,110	
Federal Income — Deferred (Note 5)	364,444	
Investment Tax Credit Adjustments — Net	124.062	
	18,426,154	
Total	10,720,101	
Operating Income	3,379,464	3,581,037
Other Income — Net	168,025	
Income Before Interest Charges	3,547,489	
Channel Channel		
Interest Charges: Interest on Long Term Debt	1,526,489	
Amortization of Debt Expense	11,475	
Other Interest Expense	587,573	
Total	2,125,537	
Section Effect of a Change in		
Income Before Cumulative Effect of a Change in Accounting Method	1,421,952	
Cumulative Effect on Prior Years to December 31, 1972		
of a Change to a Different Billing Method, Net of Taxes of \$136,921 (Note 7)		
Net Income	1,421,952	
Preferred Stock Dividend Requirements	339.243	
Balance Applicable to Common Stock	\$ 1,082,709	
Average Number of Shares Outstanding	721,087	
Earnings per Share of Common Stock:		
Income Before Cumulative Effect of a Change in Accounting Method	\$1.50	
Cumulative Effect of a Change to a Different Billing Method		
Balance Applicable to Common Stock	\$1.50	
parameter Applicable to Common Clock		

See Notes to Financial Statements.

Statement of Changes in Financial Position

Year Ended December 31	1974	
Source of Funds:		
From Operations: Net Income	\$ 1,421,952	\$ 2,134,565
Expenses not requiring outlay of funds: Depreciation	1,442,461	
Deferred Federal income taxes and investment tax credit	488,506	
Other	24.491	
Total from Operations	3,377,410	
Long Term Debt	385,810 38,334	
Preferred Stock	8,500,000 (246,095)	
Other — Net	\$12.055.459	\$10,760,692
Total	\$12,000,400	\$10,100,002
Application of Funds:		
Plant Additions and Replacements	\$ 5,908,016 1,579,196	\$ 6,978,472 1,232,672
Dividends Declared	293,400	
Increase (Decrease) in Working Capital (see below)	4,274,847	
Total	\$12,055,459	
Changes in Working Capital excluding Notes Payable:		
Increase (Decrease) in Current Assets:	\$ 1.235.591	
Cash Accounts Receivable	2.810.980	
Inventories	2,741,744	
Prepayments Decrease (Increase) in Current Liabilities:	368,902	
Maturity of Long Term Debt	(50,000)	
Accounts Payable	(2,354,474) (477,896)	
Accrued Accounts	\$ 4.274.847	
Increase (Decrease) in Working Capital	4,277,077	
Statement of Retained Earnings		
/ear Ended December 31	1974	
Balance at Beginning of Year	\$ 5.320.446	
Net Income	1,421,952	
Total	6,742,398	
Deductions:		
Dividends Declared	220.242	
Preferred	339,243 1,239,953	
Common — per share: 1974, \$1.72; 1973, \$1.675	1,200,000	
Total Deductions	1,579,196	
Balance at End of Year (Note 3)	\$ 5,163,202	
parameter at End of rear (Note 3)	0,100,00	

Balance Sheet

December 31	1974	
Assets		
Utility Plant — at Original Cost Less Accumulated Depreciation and Amortization	\$60,009,417 12,695,765	\$54,630,108 11,770,970
Net Utility Plant	47,313,652	42,859,138
Investments and Other Property:	4.229.050	4,229,050
Investment in Upper Peninsula Generating Company — at cost (Note 2) Nonutility Property and Other Investments	230,948	230,712
Total	4,459,998	4,459,762
Current Assets:		
Cash Accounts Receivable — Net	2,173,234 4,002.047	937,643 2.076.837
Receivable from Upper Peninsula Generating Company Inventories — at average cost:	885,770	
Fuel	3,609,220	
Materials and Supplies	1,446,331 1,226,953	
Total	13,343,555	6,186,338
Deferred Debits:		
Unamortized Debt Expense (being amortized over the lives of debt issues)	262,155 195,258	
Other	150,250	
Total	457,413	
	\$65,574,618	\$53,742,137

See Notes to Financial Statements.

	1974	
Liabilities		
Proprietary Capital (see Capitalization Data):		
Capital Stock:		
Common Stock	\$ 6,498,081	
Cumulative Preferred Stock	5,008,500	
Premium on Capital Stock	3,451,600	
Retained Earnings (Note 3)	5,163,202	
Total	20,121,383	20,293,388
Long Term Debt, less current maturities (see Capitalization Data)	23,473,810	23,314.00
Current Liabilities: Long Term Debt Due Within One Year (less \$70,000 held by Trustee) Notes Payable — Banks (Note 4) Accounts Payable Payable to Upper Peninsula Generating Company	165,000 10,600,000 4,870,356	
Accrued Accounts: Taxes	1,562,189	
Interest	426.667	
Dividends	56,364	
Total	17,680,576	
Deferred Credits:		
Customer Advances for Construction	157,530	
Investment Tax Credit		
Total	1,034,707	
Accumulated Deferred Federal Income Taxes	3,264,142	
	\$65.574.618	

Capitalization Data

December 31 1974 1973

CAPITAL STOCK

Common Stock, \$9 Par Value — Authorized, 1,000,000 shares; Issued and outstanding shares, 722,009 in 1974; 719,797 in 1973		
Cumulative Preferred Stock, \$100 Par Value — Authorized, 100.000 shares (issuable in series): 514% Series —		
Issued and outstanding shares, 6,885 in 1974; 7,259 in 1973	\$ 688.500	
Issued and outstanding shares, 13,200 in 1974; 13,500 in 1973		
Issued and outstanding shares, 30,000		
	\$ 5,008,500	

Common Stock — On November 8, 1973, the Company sold 65,000 shares of \$9 par value Common Stock to the public through Underwriters at a net price of \$20.35 per share. During 1974 and 1973, 2,212 and 1,633 shares, respectively, of Common Stock were sold under the Employee Stock Purchase Plan at an average price of \$17.33 and \$20.93 per share, respectively. In 1974 and 1973, \$19.908 and \$599.697, respectively, were credited to the Common Stock account and \$18,426 and \$757,231, respec-

ely, to the Premium on Capital Stock account. At December 31, 1974, 14,991 shares of unissued Common Stock were reserved for purposes of the Plan.

Preferred Stock — On November 8, 1973, the Company sold \$3,000,000, 30,000

shares, of Cumulative Preferred Stock, 8% Series, to an institutional investor.

The outstanding series are currently redeemable in whole or in part at the option of the Company or in the case of voluntary liquidation at the following amounts (plus accumulated dividends): \$105.00 per share for the 51/4% Series; \$102.25 per share through May 1, 1978 and thereafter \$101.00 per share for the 4.70% Series; and at \$108.00 per share up to November 1, 1978 and thereafter up to November 1, 1983 at \$106.40 per share and at decreasing amounts of \$1.60 per share at 5-year intervals through November 1, 1998 and at \$101.00 per share thereafter for the 8% Series.

Purchase funds for all series provide that the Company will annually offer to purchase on May 1 (1976 for the 8% Series), at prices not to exceed \$100 per share pura accrued dividends, 2% of the maximum number of shares of each series issued prior to March 15 of such year less any shares thereforce purchased and surrendered by the Company to the Transfer Agent as a purchase fund credit for such year. All shares so purchased and surrendered shall be cancelled and shall not be reissued. During 1974, \$14,305 was credited to the Premium on Capital Stock account representing the discount on the purchase of Preferred Stock as described above.

LONG TERM DEBT

First Mortgage Bonds:		
314% Series due 1977 (excluding \$42,000 in 1974 and		
\$56,000 in 1973 held by Trustee)	\$ 2,513,000	
3% Series due 1980		
4%% Series due 1983	800.000	
444% Series due 1988 (excluding \$95,000 in 1974	000,000	
and \$40,000 in 1973 held by Trustee)	2 880 000	
5//k% Series due 1991	1,760,000	
4.60% Series due 1993	4,500,000	
91/8% Series due 2001	4,900,000	
8%% Series due 2003	5,000,000	
51/4% Debentures due 1978	520,000	550,000
Installment Sales Contract For Air Pollution Control Equipment —		
\$230,000 5,60% Serial Bonds due 1984 and \$1,170,000 6,90%		
Term Bonds due 1999 (excluding \$1,014,190 held by Trustee		
at December 31, 1974)		
Total	23.638.810	
Less — amounts due within one year (excluding amounts		
held by Trustee)		
How by model and market the control of the control		
Total Long Term Debt	\$23,473,810	

Annual maturities of long term debt for the five years subsequent to December 31, 1974 aggregate \$210,000 for 1975, \$238,000 for 1976, \$2,705,000 for 1977, \$645,000 for 1978, and \$250,000 for 1979, of which \$145,000 annually may be met by property additions.

Substantially all electric utility property was subject to lien and collateralized under First Mortgage Bonds.

Notes to Financial Statements

1. Summary of Significant Accounting Policies

Floritie Plan

The cost of additions to utility plant and replacements of retirement units of property is capitalized. Cost includes material, labor, engineering, supervision, transportation and other related items. The Company also capitalizes an allowance for funds used during construction. Maintenance and repairs are charged to operations, and replacements and betterments are capitalized. The original cost of property retired, plus cost of removal, less salvage, is charged to the accumulated provision for depreciation.

Depreciation and Investment Credit

For financial statement purposes, the Company generally is depreciating the original cost of property by the straight-line method over its estimated remaining service life as determined by independent engineers. For tax purposes, the Company uses accelerated methods of depreciation for which related deferred insolve taxes are provided.

a amounts of investment tax credits contained in deferred credits are being amortized ratably over the estimated service lives of the related properties.

Revenues

Revenues include amounts actually billed for services rendered. No estimate of unbilled revenue is recorded.

Pension Plan

The Company has a non-contributory retirement plan, as amended, covering full-time officers and employees, subject to age and period-of-employment conditions. The total cost of the plan was \$310,311 and \$297,928 for 1974 and 1973, respectively. Normal costs are accrued annually, and prior service costs are being amortized over a period of twenty years. The Company's policy is to fund pension cost accrued.

2. Investment in Upper Peninsula Generating Company

*** "per Peninsula Generating Company is jointly owned by the mpany (19%) and Cliffs Electric Service Company (81%), a subsidiary of The Cleveland-Cliffs Iron Company, and operates a steam electric generating plant in Marquette, Michigan with a

present net generating capacity of 258,900 kw. During 1974 (2). Electric Service Company acquired additional shares of Generating Company stock for \$6,204,000 increasing its owners from 74% to 81%.

The power contract, as amended, between Generating Comparand its owners provides, among other things, that Generating Company will sell its production of power only to the owner and that the owners covenant to pay to Generating Comparas energy and demand charges, all operating costs and other charges.

In 1973 an environmentalist group filed suit against General Company and other parties. The plaintiff seeks, among obtinings, a declaration that a certain easement and agreement and agreement and advectment and representation of the payment of damages not to exceed \$100 million. At this waster a firm date for trial has not yet been set.

Condensed financial information relating to Generating Compatioliows:

Results of Operations	
Revenues:	
Upper Peninsula	
Power Company	
Cliffs Electric	
Service Company	
Other	
Total	
Expenses:	
Production fuel	
Other operating expenses	
Depreciation	
Property and other taxes	
Interest charges	
Total	
Net Income	
Financial Position Utility Plant, net of	
accumulated depreciation	
Other assets	
Total	
Less:	
Long term debt	
Current liabilities	
Total	
Proprietary Capital	

3. Restrictions on Retained Earnings

At December 31, 1974, under the most restrictive provisions of the Company's long term debt indentures, approximately \$3,659,000 of retained earnings was unrestricted as to the payment of cash dividends on Common Stock.

State income tax, net of Federal income tax benefit, \$24,579 and \$110,159; additional depreciation for tax purposes, \$82,023 and \$97,983; items capitalized in utility plant and deducted for tax purposes, \$107,992 and \$94,576; and investment tax credit amortization, \$30,251 and \$22,131, respectively

4. Notes Payable - Banks

Short term borrowings normally bear interest at the prevailing prime commercial rate. The Company generally has been expected to maintain a compensating balance of 10% of the line of credit (\$10,600,000) or 20% of the debt outstanding whichever is greater.

6. Commitments

The Company operates and maintains a steam electric generating station owned by the City of Escanaba, Michigan and has contracted to pay \$279,400 annually for the privilege of using the excess capacity of the station. The contract expires in May 1978 and is subject to renewal by the City for an additional ten-year period.

5. Income Taxes

deferred Federal income taxes are provided on the timing difference resulting from the use of accelerated methods of depreciation for fax return purposes. Total income tax expense is less than the amounts computed by applying in 1974 and 1973 the U.S. Federal income tax rate of 48% primarily because of the following:

7. Change in Billing Method

In January 1973 the Company changed from a bimonthly to a monthly billing basis. In the opinion of management, this change will correlate the billing of revenue more closely to the rendition of service than under the former method.

Auditors' Opinion

To the Board of Directors of

Upper Peninsula Power Company

We have examined the balance sheet of Upper Peninsula Power Company as of December 31, 1974 and 1973 and the related statements of income, retained earnings, and changes in financial position for the years then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the

In our opinion, the accompanying financial statements present fairly the financial position of the Company at December 31, 1974 and 1973 and the results of its operations and the changes in its financial position for the years then ended, in conformity with generally accepted accounting principles consistently applied during the period subsequent to the change, with which we concur, made as of January 1, 1973, in the billing method described in Note 7 to the financial statements.

Haskins & Sells Chicago, February 14, 1975

Income Statement year ended december 31

	1974	1973
Operating Revenues		
Electric	\$51,932,433	\$46,419,591
Gas	14,202,593	12,470,338
Total Operating Revenues	66,135,026	58,889,929
Operating Expenses		
Fuel	8,048,893	6,163,252
Purchased power	536,997	482,001
Power cost allocation — parent company	(1,022,009)	(726,563)
Gas purchased for resale	9,348,249	8.226.675
Other operations expense (Note A)	8,954,710	8,677,709
Maintenance	4,157,084	3,371,599
Taxes other than income taxes	5,193,116	5,319,685
Straight line	7,143,358	
Deferred income taxes (Note B)	3,829,600	
Federal income tax (Note B)	4,930,000	
Investment tax credit adjustments — net	195.800	524,350
State income tax	857,700	
Total Operating Expenses	52,173,498	46,271,973
Operating Income	13,961,528	12,617,956
Other Income and Deductions		
Allowance for funds used during construction (Note C)	12,750	
Miscellaneous — net	217,405	109,942
Income taxes	(29,200)	19,800
Total Other Income and Deductions	200,955	344,669
Income Before Interest Charges	14,162,483	12,962,625
Interest Charges	4,986,568	4,970,656
Net Income	9,175,915	\$ 7,991,969
The notes on pages 6, 7 and 8 are an integral part of the financial star	tements.	

The notes on pages 6, 7 and 8 are an integral part of the financial statements.

Retained Carnings

Statement year ended december 31

		1974	1973
	Balance, January 1	\$18,331,222 9,175,915	\$18,788,024 7,991,969
L		27,507,137	26,779,993
	Deductions		
	On Preferred Stock	180,021	180,021
	On Common Stock	8,268,750	8,268,750
		8,448,771	8,448,771
	Ralance December 31	\$19,058,366	\$18,331,222

Statement of Changes

in Financial Position year ended december 31

	9,175,915 0,972,958 195,800	\$ 7,991,969 9,798,965
Net income	0,972,958	9,798,965
Depreciation 10 Investment tax credit adjustments — net	0,972,958	9,798,965
Investment tax credit adjustments — net		
	195,800	
		524,350
Allowance for funds used during construction	(12,750)	(214,927)
Nuclear fuel reprocessing and contract warranty costs	1,785,855	661,958
Other non-cash items	(120,799)	(128,796)
Total Funds from Operations	1,996,979	18,633,519
Short term borrowings	4,555,102)	5,199,558
Contributions in aid of construction	71,962	163,259
Miscellaneous	373,357	65,659
1	7,887,196	24,061,995
Use of Funds		
Construction expenditures	9,381,638	12,827,734
Payments of cash dividends	8,448,771	8,448,771
Retirement of long term debt	267,907	656,516
11	8,098,316	21,933,021
Change in Net Current Assets (other than short term borrowings) \$	(211,120)	\$ 2,128,974

The notes on pages 6, 7 and 8 are an integral part of the financial statements.

Balance Sheet

Assets

	1974	1973
Utility Plant		
Electric (Note D)	\$208,296,298	\$203,386,900
Gas	21,084,440	20,293,583
	229,380,738	223,680,483
Accumulated provision for depreciation	(54,183,258)	(44.417,938)
	175,197,480	179,262,545
Construction work in progress	3,428,432	1,264,872
Net Utility Plant	178,625,912	180,527,417
Nonutility Property	871,008	870,846
Accumulated provision for depreciation	(3,261)	(2,497)
Net Nonutility Property	867,747	868,349
Current Assets		
Cash	553,916	526,644
Temporary cash investments	-	1,456,504
Accounts receivable	6,720,069	4,869,139
Due from parent company	76,388	641,406
Materials and supplies (at average cost)	3,134,035	2,294,505
Prepayments and other assets	2,012,232	1,510,943
Total Current Assets	12,496,640	11,299,141
Deferred Charges		
Unamortized debt expense	294,211	312,875
Other	168,981	198,733
Total Deferred Charges		511,608
	\$192,453,491	\$193,206,515
	1-2411001104	

The notes on pages 6, 7 and 8 are an integral part of the financial statements.

Liabilities

	1974	1973
Capitalization		
Common Stock and Retained Earnings		
Common stock (authorized 4,500,000 shares,		* 70 500 000
\$20 par value; issued 3,675,000 shares)	\$ 73,500,000	\$ 73,500,000
Retained earnings	19,058,366	18,331,222
	92,558,366	91,831,222
Preferred Stock — Cumulative (authorized 80,000 shares, \$100 par value) 4½% Series, issued 40,000 shares; redemption price \$105	4,000,000	4,000,000
Long Term Debt (Note E) First Mortgage Bonds		
3 % Series due 1978	10,530,000	10,710,000
23/4 % Series due 1980	640,000	640,000
35% % Series due 1981	2,358,000	2,378,000
31/8 % Series due 1984	2,316,000	2,316,000
43/4 % Series due 1991	3,660,000	3,735,000
41/2 % Series due 1993	5,201,000	5,310,000
5 % % Series due 1996	9,310,000	9,310,000
6½% Series due 1997	11,577,000	11,577,000
6 1/8 % Series due 1998	9,934,000	9,934,000
81/2 % Series due 1999	11,880,000	11,880,000
9½ % Series due 2000	9,900,000	9,900,000
5/4/0	77,306,000	77,690,000
Unamortized premium — net	125,772	137,746
	77,431,772	77,827,746
Total Capitalization	173,990,138	173,658,968
Current Liabilities		
Notes payable to banks (Note F)		4,350,000
Commercial paper (Note F)	1,094,194	1,299,296
Accounts payable	3,799,906	2,773,963
Payroll and vacation accrual	1,153,191	969,803
Taxes accrued — income and other	3,660,150	3,584,494
Interest accrued	1,382,541	1,405,147
Customer deposits	73,301	92,824
Other	355,445	189,684
Total Current Liabilities	11,518,728	14,665,211
Deferred Credits		
Accumulated deferred investment tax credits	2,413,300	2,217,500
Nuclear fuel reprocessing and contract warranty costs	3,217,698	1,431,843
Other	76,224	67,998
Total Deferred Credits	5,707,222	3,717,341
Amortization Reserve — Federal	330,000	329,554
Contributions in Aid of Construction	907,403	835,441
	\$192,453,491	\$193,206,515

The notes on pages 6, 7 and 8 are an integral part of the financial statements.

NOTES

to Financial Statements

Summary of Significant Accounting Policies

General

The accounting records of the Company are maintained in accordance with the Uniform System of Accounts prescribed by the Federal Power Commission, modified where appropriate by requirements of the Public Service Commission of Wisconsin.

Revenues

Utility revenues are recognized at time of billing.

Property

Utility property is recorded at original cost and nonutility property is recorded at cost. The costs of additions to and replacements of significant units of property are charged to utility plant. Costs include material, labor and indirect charges for employe pensions and benefits, payroll taxes, administrative and general expense, and allowance for funds used during construction (see Note C). Replacements of minor items of property are charged to maintenance expense. The cost of depreciable property, together with removal cost less salvage, is charged to Accumulated Provision for Depreciation when property is retired.

Income Taxes

Federal and state income tax expense is computed using accelerated depreciation methods. Straight line depreciation is used for financial statement purposes. The income tax reduc-

tion resulting from the use of accelerated depreciation and the current deduction of property removal cost is deferred by recording a corresponding increase in depreciation expense as prescribed by the Public Service Commission of Wisconsin. The income tax effects of other differences between tax and financial accounting are not deferred. These differences in the aggregate are not significant. The Federal investment tax credit is accounted for on the deferred basis and is reflected in income ratably over the life of the property subject to the credit.

Research and Development

Research and development costs are charged to expense or construction as incurred in accordance with the Federal Power Commission system of accounts.

Debt Premium, Discount and Expense

Long term debt premium or discount and expense of issuance are amortized by the straight line method over the lives of the debt issues to which they pertain. Unamortized debt premium discount and expense pertaining to debt reacquired for sinking fund purposes is written off currently.

A. Pension Plans

The Company has two noncontributory pension plans covering all eligible employes. Company policy is to accrue and fund annual normal employe pension cost together with interest on the unfunded prior service liability. The unfunded prior service liability of the pension plans is not significant. All vested benefits under the pension plans have been funded.

Pension expense was \$489,000 in 1974 and \$561,000 in 1973. The decrease in pension expense in 1974 resulted principally from a change from 4% to $4\frac{1}{4}\%$ in the actuarial assumption for rate of earnings of pension fund investments.

B. Income Tax Expense

Federal income tax expense as a percent of income before Federal income taxes was 49.0% and 47.2% for the years 1974 and 1973, respectively, compared to the statutory tax rate of 48%.

In 1974 the Company was granted a Federal income tax refund for the years 1968 and 1969 based on its retroactive election of the use of guideline lives for come tax depreciation purposes. Consistent with the Company's policy of deferring the tax reduction resulting from the difference between depreciation expense for book and tax purposes, the refund was recorded by an increase of \$443,000 in depreciation expense and a corresponding decrease in current income tax expense. Similar refund claims have been filed for the years

C. Allowance for Funds Used During Construction

Since 1969 the Company has capitalized the cost of debt and equity funds used to finance construction work in progress in conformity with predominant industry practice. Income is correspondingly increased by the amounts so capitalized and is termed Allowance for Funds Used During Construction (AFDC). However, during 1974 the Company discontinued capitalizing AFDC pursuant to an order of the Public Service Commission of Wisconsin. The elimination of AFDC had no significant effect on net income.

D. Licenses for Hydroelectric Projects

A new license for Hydroelectric Project No. 1759 has been issued by the Federal Power Commission replacing the original license which expired June 30, 1970. The new license expires December 31, 2001.

The original license for Hydroelectric Project No. 2131 expired June 30, 1974 and the project is subject to takeover by the Federal government or relicensing to the Company or to another licensee. The Company has made application for a new 50-year license and has received an annual license extending to June 30, 1975. If Project No. 2131, which had a depreciated cost of \$800,000 at December 31, 1974, is taken over by the Federal government or another licensee, it is expected the Company would be entitled to receive approximately the depreciated cost of the project plus severance damages, if any.

E. Long Term Debt

The maturities and sinking fund requirements through 1979 for the aggregate amount of long term debt outstanding at December 31, 1974 are shown below. Of the annual sinking fund requirements, \$540,000 may be satisfied by certifying additional mortgaged property.

	Maturities	Sinking Fund
1975	\$	\$855,000
1976		855,000
1977		855,000
1978	10,320,000	715,000
1979		715,000

The sinking fund requirements have been anticipated by advance purchases of bonds to the extent of \$569,000 and certification of property in the amount of \$540,000.

Substantially all utility plant and nonutility property is subject to the lien of the mortgage. The First Mortgage Bonds rank equally as to Series.

F. Notes Payable and Commercial Paper

The average interest rate for commercial paper outstanding at December 31, 1974 was 10.00%. Average short term borrowings outstanding during 1974 amounted to \$1,850,000 with an average interest rate of 10.00%. Maximum short term borrowing during 1974 was \$2,800,000. Commercial paper matures in January, 1975.

Unused lines of credit for short term borrowing amounted to \$3,700,000 at December 31, 1974. The informal line of credit arrangements are generally renewed annually. In support of various lines of credit with lending banks, the Company has informally agreed to maintain unrestricted compensating balances. At December 31, 1974 the cash

balance shown on the balance sheet included \$280,000 which represented compensating balances.

G. Rental Expense

Total rental expense was \$6.824,000 in 1974 and \$5,657,000 in 1973, of which \$6,769,000 and \$5.591,000, respectively, was for the lease of nuclear fuel.

The Company and its parent, Wisconsin Electric Power Company, each has an undivided one-half interest in a nuclear fuel lease agreement. Except for termination by casualty, default by the lessees or certain other remote contingencies, the lease is terminable by the companies or the lessor on two years notice. The companies may purchase the leased nuclear fuel material at the higher of fair market value or unamortized cost in the event of termination of the lease by the lessor.

Rental payments are made monthly during the term of the lease based on the amount of nuclear fuel material leased and the amount of nuclear fuel burned. Lease payments are recorded as fuel expense based on the amount of fuel burned.

BALANCE SHEET BOARD OF LIGHT AND POWER, CITY OF MARQUETTE

	June	e 30,
	1975	1974
ASSETS		
CURRENT ASSETS		
Operation and maintenance fund - Note B:		
Cash	\$ 147,049	\$ 55,985
Savings certificates and accrued interest	96,917	139,734
United States Government securities at		
cost and accrued interest (approximates		49,319
market) Accounts receivable, less allowance for		47,317
losses in collection (1975 - \$18,551;		
1974 - \$12,447)	418,111	288,900
Inventories:	710,122	200,700
Materials and supplies	106,348	118,078
Coal	1,171,683	707,058
Diesel fuel	91,683	83,092
Prepaid expenses	21,558	19,329
TOTAL CURRENT ASSETS	2,053,349	1,461,495
Ducanny compa Aggrega N. C. D.		
RESTRICTED ASSETS - Note B	601,729	624,254
Bond and interest redemption fund cash Bond reserve fund	627,148	589,449
Replacement fund	195,500	181,918
Replacement fund		101,710
TOTAL RESTRICTED ASSETS	1,424,377	1,395,621
UNAMORTIZED BOND ISSUANCE EXPENSE	32,328	35,082
UTILITY PLANT IN SERVICE		
Land, buildings and equipment	19,319,695	18,934,510
Less allowances for depreciation	7,319,701	6,782,748
	11,999,994	12,151,762
Cash appropriated for construction - Note C	80,970	1,357,464
Construction work in progress	1,524,997	98,949
	13,605,961	13,608,175
	\$17,116,015	\$16,500,373

Marquette Board of Light and Power Financial Statement 4-16

		30, 1974
LIABILITIES, RESERVES, CONTRIBUTIONS AND RETAINED EARNINGS CURRENT LIABILITIES	1975	1974
Payable from current assets: Accounts payable Employee compensation Accumulated sick leave Customer deposits including accrued interest	\$ 724,525 74,570 83,000 140,347	\$ 565,610 55,518 74,000 119,814
	1,022,442	814,942
Payable from restricted assets: Current maturities of revenue bonds payable Accrued interest payable	400,000 201,546	400,000 217,034
	601,546	617,034
TOTAL CURRENT LIABILITIES	1,623,988	1,431,976
OTHER LIABILITIES Revenue bonds payable, less current maturities - Note D Retainage due contractors	7,500,000 180,516	7,900,000 29,898
	7,680,516	7,929,898
RESERVES Bond reserve Plant replacement reserve	627,148 195,500	589,449 181,918
	822,648	771,367
CONTRIBUTIONS FROM CUSTOMERS	44,020	34,759
RETAINED EARNINGS	6,944,843	6,332,373
	\$17,116,015	\$16,500,373

See notes to financial statements.

STATEMENT OF EQUITY
BOARD OF LIGHT AND POWER, CITY OF MARQUETTE

CONTRIBUTIONS FROM CUSTOMERS	Year ended 1975	June 30, 1974
Balance at beginning of year Contributions for the year	\$ 34,759 9,261	\$ 29,505 5,254
BALANCE AT END OF YEAR	\$ 44,020	\$ 34,759
RETAINED EARNINGS		
Balance at beginning of year	\$6,332,373	\$6,031,340
Net income for the year	663,749	353,175
	6,996,122	6,384,515
Deduct:		
Transfer to bond reserve	37,698	38,883
Transfer to plant replacement reserve	13,581	13,259
BALANCE AT END OF YEAR	\$6,944,843	\$6,332,373

See notes to financial statements.

STATEMENT OF REVENUE AND EXPENSE BOARD OF LIGHT AND POWER, CITY OF MARQUETTE

	· Year ended	June 30, 1974
Operating Revenues:		
Electricity sales:		
Urban	\$3,006,662	\$2,584,158
Rural	1,271,808	955,871
Street lighting	97,345	84,613
Other municipal departments	164,766	114,393
Rent and other	18,918	11,196
	4,559,499	3,750,231
Operating Expenses:	1,949,327	1,514,923
Production	163,826	136,180
Distribution Customers' accounting	81,981	66,715
Administrative and general	462,575	403,849
Provision for depreciation	542,879	536,995
Property taxes paid municipality	457,172	448,131
	3,657,760	3,106,793
OPERATING INCOME	901,739	643,438
Other income:		
Investment income	70,412	71,989
Gain on sale of fixed assets	37,249	
Miscellaneous	3,504	
	111,165	71,989
	1,012,904	715,427
Other deductions:		
Interest on bonds	343,244	357,243
Amortization of bond issuance expense	2,753	
Interest on customer deposits	3,158	2,256
	349,155	
NET INCOME	\$ 663,749	\$ 353,175

See notes to financial statements.

Marquette Board of Light and Power Financial Statement

	Year ended	June 30,
FUNDS PROVIDED		10/4
From operations:		
Net income for the year	\$ 663,749	\$ 353,175
Items not requiring current outlay of funds:		
Provision for depreciation	558,563	551,691
Amortization of bond issuance expense	2,753	2,753
POWAL TUNING PROGRAMS		
TOTAL FUNDS PROVIDED FROM OPERATIONS	1,225,065	907,619
Revenue bond proceeds Contributions from customers for the year		1,400,000
Increase in current maturities of revenue bonds	9,261	5,254
Increase in accrued interest payable		125,000
Decrease in bond and interest redemption fund	22,525	32,413
Increase in retainage due contractors	150,618	
or and contractors	130,010	
Total funds provided	1,407,469	2,470,286
FUNDS USED		
Current installment on revenue bonds	400,000	400,000
Net additions to utility plant in service	556,349	1,748,826
Increase in unamortized bond issuance expense	550,545	12,573
Increase in bond and interest redemption fund		164,374
Increase in bond reserve fund	37,698	38,883
Increase in replacement fund	13,581	13,259
Decrease in accrued interest payable	15,487	
Decrease in retainage due contractors		49,918
Total funds used	1,023,115	2,427,833
INCREASE IN WORKING CAPITAL	\$ 384,354	\$ 42,453
CHANGES IN COMPONENTS OF WORKING CAPITAL		
Increase (decrease) in current assets:		
Cash	\$ 91,064	\$ 33,146
Savings certificates and accrued interest	(42,817)	10,951
United States Government securities and	(12,017)	10,551
accrued interest	(49,319)	
Accounts receivable	129,211	82,827
Inventories	461,486	376,959
Prepaid expenses	2,229	4,438
Increase in current assets	591,854	507,382
Increase (decrease) in current liabilities:		
Accounts payable	158,915	420,869
Employee compensation	19,052	8,163
Accumulated sick leave	9,000	
oustomer deposits	20,533	25,897
Increase in current liabilities	207,500	464,929
INCREASE IN WORKING CAPITAL	\$ 384,354	\$ 42,453
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Marquette Board of Light and Power Financial Statement

See notes to financial statements. 4-20

NOTE A - STATEMENT OF ACCOUNTING POLICIES

The significant accounting policies followed by the Board are summarize below.

Revenues and Expenditures Revenues and expenditures are recognized on the accrual basis in accor dance with the requirements of Act 2 of the Public Acts of 1968.

Inventories

11

Inventories are stated at lower of cost or replacement market. Cost is determined generally on an average cost method.

Utility Plant in Service

Utility plant acquired prior to 1940 is stated on the basis of values determined by independent appraisers as of that date. Subsequent additions are stated at cost. Depreciation is provided for on the straight-line method based or estimated useful lives. Costs related to the providing of service to additional customers are capitalized and in some cases a related fee is charged to customers and recorded as a contribution from customers (equity). Interest on bonds is capitalized during construction.

Accumulated Sick Leave Benefits

The Board has a policy of allowing employees to accumulate sick leave benefits. At retirement or certain terminations of employment, employees with ter years or more of service are paid for one half of the accumulated days at their then current rate of pay. Such benefits are recognized when earned.

The Ordinances authorizing issuance of revenue bonds require that operating revenues be used generally in the following order:

- 1. Transfers must be made from the Receiving Fund, which is used for initial deposit of all receipts, to the Operation and Maintenance Fund (included under current assets) to cover expenses of administration and operation including maintenance. The balance in the Fund at June 30, 1975, was \$243,966 and the required amount is \$345,000.
- 2. Transfers must be made to the Bond and Interest Redemption Fund for payment of current bond and interest maturities. The balance in the Fund at June 30, 1975 was \$601,729 and the required amount is \$601,546.
- 3. Transfers must be made to the Bond Reserve Fund for payment of principal and interest on bonds otherwise in default. The various bond ordinances require that \$50,000 be credited to this fund annually until \$850,000 is accumulated. The balance in the Fund at June 30, 1975 was \$627,148 and the required amount is \$570,000. Marquette Board of Light and Power

NOTE B - RESTRICTED ASSETS (Continued)

- 4. Transfers must be made to the Replacement Fund for major repairs and replacements. The various bond ordinances require that \$20,000 be credited to this Fund annually until \$300,000 is accumulated. Whenever monies are used from this fund for replacements, they will be restored from the net revenues not required for the Operation and Maintenance Fund and the Bond and Interest Redemption Fund, including the Bond Reserve Fund. The balance in the Fund at June 30, 1975 is \$195,500 and the required amount is \$210,000.
- Transfers may be made to an Improvement and Extension Fund for improvement, enlargements, extensions or repairs as deemed necessary by the Board.
- 6. Transfers may be made to a Surplus Fund for accumulating amounts in excess of the requirements outlined above. Any excess so remaining may be transferred to any other Fund or Funds of the System or may be used for any other purpose permitted by the Constitution and laws of the State of Michigan or the Charter of the City of Marquette, provided, however, that in in the event there is a deficit in the Operation and Maintenance Fund, Bond and Interest Redemption Fund (including the Bond Reserve Fund) or the Replacement Fund, on account of defaults in setting aside monies as required, then transfers of remaining revenues shall be made to these Funds in the priority and order as herein enumerated.

The composition of the various restricted asset accounts is as follows:

	June 30,			
Bond Reserve Fund	1975	1974		
Cash Savings certificates United States Government obligations -	\$ 72,143 121,517			
at cost (approximates market) Accrued interest	424,658 8,830			
	\$627,148	\$589,449		
Replacement Fund				
Cash Savings certificates United States Government obligations -	\$ 587 104,278			
at cost (approximates market) Accrued interest	88,304 2,331	96,421 2,266		
	\$195,500			

Marquette Board of Light and Power Financial Statement

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE C - CASH APPROPRIATED FOR CONSTRUCTION

Cash appropriated for construction at June 30, 1975 represents the unexpended proceeds of the 1973 Revenue Bond issue totaling \$60,970 and the 1970 Revenue Bond issues totaling \$20,000. This money can be expended only for certain improvements to the System as described in the ordinances authorizing the issues.

NOTE D - REVENUE BONDS

Details of outstanding revenue bonds are as follows:

	June	e 30,
	1975	1974
Issue of May 1, 1963, 3 - 3.5% payable in variable annual installments through 1987 Issue of April 1, 1970, 5 - 8% payable	\$2,700,000	\$2,900,000
in variable annual installments through 1990 Issue of December 1, 1973, 4.2 - 6%	3,600,000	3,700,000
payable in variable annual install- ments through 1984	1,200,000	1,300,000
	\$7,500,000	\$7,900,000

NOTE E - RETTREMENT PLAN

The Board has under the Michigan Municipal Employees Retirement System a contributory pension plan covering substantially all of its employees. The plan includes the employees of the City of Marquette. The Board's policy is to fund pension costs accrued, which includes amortization of prior service costs over 12 - 24 years.

Total pension expense for the years was approximately \$81,130 and \$70,841 during 1975 and 1974 respectively. The actuarially computed value of vested benefits for the plan as of December 31, 1973 (the last valuation by the actuary) exceeded the assets of the plan by approximately \$908,493 (including amounts applicable to employees of the City of Marquette).

COMPARATIVE FINANCIAL REPORT AS OF DECEMBER 31, 1973 AND 1974

WHAT WE OWN (ASSETS)	1974	1973
CASH-GENERAL FUND	11,987,96	11,405.31
CASH-CONSTRUCTION FUND	32,067.56	68,017.64
INVESTMENTS	139,722.19	13,811.05
Accounts Receivable-consumers' Less	32,985.38	29,795,38
ACCOUNTS RECEIVABLE-OTHER, LESS RESERVE	3,959.43	1,839.33
MATERIALS AND SUPPLIES	88,979.34	61,912.69
PREPAYMENTS	4,771.90	4,569.73
Deferred charges	16,643.90	9,346.71
UTILITY PLANT & OTHER PROPERTY,	1,176,742.83	998,047,41
LESS DEPRECIATION TOTAL ASSETS \$1	1,507,860.49	\$1,198,745.25
WHAT WE OWE (LIABILITIES)		
LONT TERM OBLIGATIONS TO REA	1,162,113.34	1,003,203.00
CURRENT & ACCRUED LIABILITIES	155,231.05	94,252.19
OTHER LONG TERM DEBT-CFC	124,127.05	
CONTRIBUTIONS IN AID OF CONSTRUCTION		22,314.41
MEMBERSHIP FEES	15,990.00	15,660.00
DONATED CAPITAL	5,537.15	5,377.15
PATRON EQUITIES	44,861,90	57,938.50
TOTAL LIABILITIES AND OTHER CREDITS \$3	1,507,860.49	\$1,198,745.25

Statement of Nondiscrimination

The Ontomicon County Rural Electrification Association has filed with the Federal Government a Compliance Assurance in which it assures the Rural Electrification Administration that it will coimply fully with all requirements of Title VI of the Civil Rights Act of 1964 and the Rules and Regulations of the Department of Agriculture issued thereunder, to the end that no person in the United States shall, on the ground of race color, or national origin, be excluded from parricipation in, be denied the benefits of, or be otherwise subjected to discrimination in the conduct of its program and the operation of its facilities. Under this Assurance, this organization is committed not to discriminate against any person on the ground of race, color or national origin in its policies and practices relating to applications for service or any other policies and practices relating to vice or any other policies and practices relating to treatment of beneficiaries and participants including rates, conditions and extension of service, use

of any of its facilities, attendance at and participaoperations of this organization

"Any person who believes himself, or any specific class of individuals, to be subjected by this organization to discrimination prohibited by This VI of the Act and the Rules and Regulations issued thereunder may, by himself or a representative, file with the Secretary of Agriculture, Washington, D. C. 20250 or the Rural Electrification Administration, Washington, D. C. 20250, or this organization, or all, a written complaint. Such complaint must be filed not later than 90 days after the alleged discrimination, or by such later date to which the Secretary of Agriculture or the Rural Electrification Administration extends the time for filing. Identity of complaintants will be kept confidential except to of complaintants will be kept confidential except to the extent necessary to carry out the purposes of the Rules and Regulations."

	1974	1973
OPERATING REVENUES	558,226.47	525,648.95
Non-operating revenues	959,73	742,90
Total Revenues	559,186,20	526,391.85
COST OF POWER	307,203,68	246,296.05
OPERATIONS EXPENSE	15,267,92	16,443.41
MAINTENANCE EXPENSE	43,157.84	30,871.48
Consumers' Accounting & Collecting	28,243.78	24,666.10
DEMONSTRATION & PROMOTION EXPENSE	272.72	583,69
GENERAL OFFICE SALARIES & EXPENSES	30,597.55	25,914.82
LEGAL AND ACCOUNTING	4,132.59	1,561.75
Insurance & Employees safety program	16,890.41	15,114.52
MAINTENANCE OF GENERAL PROPERTY	3,824.53	2,701.91
MISCELLANEOUS GENERAL EXPENSE	13,671.73	11,799.86
DEPRECIATION AND AMORTIZATION	46,604.22	41,965.09
TAXES	31,988.59	32,798.97
INTEREST ON LONG-TERM DEBT AND AMORTIZATION OF LOAN	30,407,24	20,309,90
Total Expenses	572,262.80	471,027.59
NET MARGIN (LOSS)	(13,076.60)	55,364.26

Alfred V. Hill & Company, Certified Public Accountants - Marshfield, Wisconsin 54449 OPINION

Board of Directors

The Ontonagon County Rural Electrification Assn. Ontonagon, Michigan

Gentlemen:

We have examined the Balance Sheet of THE ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION as of December 31, 1974 and the related Statements of Revenue and Expense, Patron Capital and Other Equities, and Changes in Financial Position for the year ended on that data.

Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We have previously examined and reported on the financial statements for the preceding year.

In our opinion, the accompanying statements present fairly the financial position of The Ontonagon County Rural Electrification Association at December 31, 1974 and the results of its operations and the Changes in Financial Position for the year then ended, in conformity with generally accepted accounting principles applied on a bank consistent with that of the preceding year.

Respectfully submitted, Alfred V. Hill & Co. Marshfield. Wis., March 15, 1975.

* * *

A delicious lunch will be served free to members attending.

Door prizes will be awarded to holders of lucky tickets. Each member registered in person will receive a ticket. One ticket to a family.

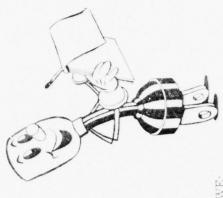
Balance Sheet

December 31, 1974

With Comparative Figures for 1973

WHAT WE HAVE:

Dec. 31, 1974 Dec. 31, 1973	S4,701,259.48 \$4,224,155.97 1,541,974.25 1,438,804.63	\$3,159,285.23 \$2,785,351 34	\$ 131,682,23 \$ 73,23448	156,912.87 137,381.14	3,479.41 4,280.01	67.35	262,162,83 74,822,03	19,867.30 14,123,54	41,527,01 13,429.53	35,060.41 105,075.28	23.776.09 59,043,75	90,053.86 69,527,32
	Electric & General Plant, Lines, Office Bidg., Trucks, Equipment, etc. Less Reserve for Depreciation	NET PLANT		Accounts Receivable Power	Accounts Receivable Other	Amount due us for Notes on Appliances	Material Supplies & Small Tools	Prepaid Insurance & Expenses	Preliminary Surveys & Work Plans	Investment in Savings & Loan Assn.	Investment in Certificates of Deposit	



WHAT WE OWE:

	Dec. 31, 1974	Dec. 31, 1973
o REA, Long Term Loans	\$2,849,235.24	\$2,487,553.26
other Long Term Obligations, Misc.	2,751.82	3,669.08
Accounts Payable & Notes Payable	161,979.37	60,805.81
secrued Interest Payable to REA	7,435.62	
roperty and Payroll Taxes	35,670.40	35,199.27
Archigan State Sales Tax	4.992.49	4,670.57
		1
verned Payroll & Vacations Allowance	8,417,39	
Sontribution in Aid of Construction		76,911.04
replied Power Bills	114,871.06	1
firellaneous Deferred Credits	18,239.23	16,724.03
urrent Maturities on Long Term		
	118,914.53	
TOTAL OF WHAT WE OWE	\$3,397,667.23	\$2,814,756.82
OUR EQUITY IN WHAT WE HAVE		
fembership Fees	\$ 29,418.31	\$ 27,618.31
Patropage Capital Allocated Other Equities	478,413.28	474,652.22
TOTAL EQUITY IN	14001	2 KOO KTO OK
THE PERSON AS A PERSON AND THE PERSO	0.041.030	010,010
TOTAL	\$3,923,807,24	\$3,335,335,77

Income Statement

29,237,300 25,752,666 11 97 627 819 00 89

28.376.117 12.0% 659 520.36 \$ 6.25

Average KWH per full-time member per monun. Average Bill per full-time member per mouth. Average KWH per seasonal member per month Average Bill per seasonal member per month.

Miles of Line in Operation Average Number of members served KWH Purchased KWH Sold Percent of line loss

Operating Statist's

Dec. 31, 1973	\$911,413.02	4,948.90	3,664.77	1,559.24	12,653.29	3,193.95	\$937,433.17
Dec. 31, 1974	\$ 987,502.71	4,819.80	4,503.83	1,940.34	10,735,29	2,583.17	\$1,012,085.14
HOM				Revenue			
DEE PHONE		ome	dates	Slectric Revenue		negate	
CAME PROM		Income	Penalties	us Electric Revenue	rned	ans Income	TAL
E II CAME PROM	Electric Power	ental Income	ner Penalties	aneous Electric Revenue	Earned	aneous Income	TOTAL
WHERE II CAME PHOM	Sale of Electric Power	Pole Rental Income	Consumer Penalties	Miscellaneous Electric Revenue	Interest Earned	Nucellaneous Income	TOTAL

March Directored	SEE 478 50	\$440 5AB A7	
perations			
aintenance	78,822.86		
nsumer Accounting & Collecting	28,351.00	27,380.98	
wer Use and Member Information	4,982.10	6,365.17	
neral Office Salaries & Expense	30,262.57	24,809.72	
pecial Services: CPA and Legal	4,782.17	4,581,68	
surance, Injuries & Damages (Comp.)	4,965.91	4,828.96	
mployees Welfare & Insurance	9,475.20	8,040.90	
prectors Fees and Expenses	7,486.29	9,087.71	
ues Paid Assoc Organizations	3,642.25	3,147,23	
	938.15	1,380 05	
	3,891.44	3,716.25	
scellaneous Expense (General)	21,039.96	21,837,75	
	115,919.00	108,201.69	
	36,833.67		
ayroll Taxes	10,563.60		
	(368.54)	7,133 61	
	47 AGE NO		

3

\$ 566,428.50	22,135.41	78,822,86	28,351.00	4,982,10	30,262.57	4,782,17	4,965,91	9,475,20	7.466.29	3,642.25	938.15	3,891.44	21,039.96	115,919.00	36,833.67	10,563.60	(368.54)	57.696.08
Power Purchased	Operations		Consumer Accounting & Collecting	Power Use and Member Information	, General Office Salaries & Expense	Special Services: CPA and Legal	Insurance, Injuries & Damages (Comp.)	Employees Welfare & Insurance	Directors Fees and Expenses	Duce Paid Assoc Organizations	Donattons	Maintenance of General Property	Miscellaneous Expense (General)			Payroll Taxes		Interest on REA on Long Torm Dent

Financial Statement

WHERE YOUR DOLLAR WENT

COMPARISON BY YEARS

	1970	1971	1972	1973	1974
ower Costs	42.5c	46.2c	49.1c	48.00	55.9c
lling	2.9c	2.8c	3.10	2.9c	2.8c
perations, Maint., & Admin. Exp.	20.3€	19.40	17.40	17.50	17.60
axes and Insurance	6.2c	6.10	6.70	6.70	6.10
epreciation	14.10	13.6c	12.4c	11.6c	11.5c
terest on Loans	6.40	6.20	5.60	5.0c	5.7c
argin	7,60	5.70	5.7c	30.30	40



4,277.52

4.2 - RIGHT-OF-WAY/EASEMENT DATA

	Page
Upper Peninsula Power Company	4-28
Wisconsin Michigan Power Company	4-30
Ontonagon County Rural Electrification Association	4-50

UPPER PENINSULA POWER COMPANY RIGHT OF WAY and EASEMENT GRANT

KNOW ALL MEN BY THESE PRESENTS
That the undersigned,
hereinafter called "Grantor", whether one or more for and in consideration of
3. Deliars such in hand paid, receipt of which is hereby acknowledged, does hereby grant and convey unto UPPER PENINSULA POWER COMPANY, a Michigan Corporation of Holectron, Michigan hereinafter called "Commer", its ancessors and assigns, a right of way and ensement for the construction construction maintenance, in specific part of the distribution of allocation parts (including acrial natrol), allocation, removal, replacement, reconstruction and or repair of one or move into or lines of wires for the transmiss, a analysis distribution of electric current for light, here and power surpress, together with all the works of the Company tree-scary for a sundersisking, including but without for his rice generality of the fore-scaling all such supports, poles and/or other structures, with a guys, anchors, installations to other faxtures, conjument and apparence as many be necessary or convenient in connection therewith for construction and operatic of said electric power line or lines over, through, upon, under and across the following described land situated in
County, State ofto-witz
Section Township Range together with the right to clear the right of way and remove or trim trees and brush and remove other obstructions from that partion of sold lands lying
within
The said strip of land comprising the right of way and essement shall be selected by grantee and shall be as- certained or follows:
That performed the bound desired
That portion of the above described property lying between lines parallel to and situate. teet to the
Grantor covenants with Grantos that he is the lawful owner of the aforesaid lands, that he has the right and authority to make this grant, and that he will force or warrant and defend the title thereto.
TO HAVE AND TO HOLD the said right I way and easement unto said UPPER PENINSULA POWER COMPANY, its successors and assigns.
The Grantee, by the acceptance hereof, acrees that insofar as it is practicate so to do it will build said electric cower line or lines so as not to interfere with the ordinary use of the surface of the land, and also us pay any damage of crops, lorses and funder which may arise from constructing, to have a partition as a partition as a surface operation or removing said lines to display the construction of the properties of displayers of partitions and determined by three (2) displayers of partitions of the be-provided by Grantee (2) arbitrators or any two (2) of them, in writing, shall be final and conclusive, he seed of such three (2) arbitrators or any two (2) of them, in writing, shall be final and conclusive.
The literator covenants that he will, if so requested by the Grantee, execute such further and other documents of tile a respect of the said gight of way and casement as may be requisite.
The Agreement shall be assignable by the Grance and shall insure to the benefit of and to binding upon the selful executors, administrators, ancessors and assigns of the parties hereto; and wherever the singular or massigns at set, it shall be considered as if the plural or the feminine or the neuter, as the case may be had been used where he contex or the party or parties hereto so require and the rest of the sentence shall be construed as if the granumatical and terminological changes hereby rendered to ressure have been made.
IN WITNESS WHEREOF, the Granter has bereinte set his hand end real thisday of

(CONTINUED ON REVERSE SIDE)

Upper Peninsula Power Company Right-of-Way/Easement Data

INDIVIDUAL ACKNOWLEDGMENT FORM On this.....day of..... described in and who executed the foregoing instrument, and acknowledged to me that _____executed the same as _____free act and deed, and for the uses and purposes therein expressed. CORPORATION ACKNOWLEDGMENT FORM State of ______ 88 On this, day of 19 before me, a Notary Pubne in and for of the corporation described in and which executed the foregoing instrument; that the seal affixed hereinto is the corporate seal of said corporation, that said instrument was signed and scaled in behalf of said corporation by authority of its board of directors, and acknowledged that such corporation executed said instrument and that said instrument was and is the free act and deed of said corporation, and that they executed the same as such officers as the deed of said corporation, by its authority. UPPER PENINSULA POWER COMPANY Upper Peninsula Power Company

RIGHT OF WAY and EASEMENT GRANT

FOR AND IN CONSIDERATION of the sum of One Dollar (81,00) and other valuable consideration, receipt of which is hereby acknowledged, the undersigned grantor__dees hereby convey unto
WISCONSIN MICHIGAN POWER COMPANY

a Wisconsin corporation, grantee, its successors and assigns, the right, permission and authority to construct, maintain, operate, relocate, and replace an electric transmission line of conductors and structures of such material as said grantee may select, together with anchors, guy wires, and such other underground and overhead accessories and appliances as may be from time to time necessary or convenient for the purpose of transmitting electrical energy upon, along, and across the hereinafter described strip of land One Hundred feet in width, being a part of the premises of the undersigned grantors described as

The NdxSW of Section 3, Town 46 North, Range 39 West, Township of Haight, Ontonagon County, Michigan.

The center line of said strip of land is described as follows:

Beginning at a point on the west section line and 938' more or less south of the east and west quarter line thence running north 10°16' east for a distance of 555' more or less; thence running north 1°50' east for a distance of 392' more or less to a point on the east and west quarter line and 112' more or less east of the west section line.

The right, permission and authority is also granted to said grantee to cut down and remove or trim all trees and overhanging branches now or hereafter existing on said strip of land of said width, to cut down and remove brush or apply chemicals for purposes of brush control, and to cut down and remove or trim such trees or parts thereof now or hereafter existing on the premises of the undersigned located outside of said strip of land of said width which by falling might interfere with or endanger said electric line.

The undersigned covenant 5 and agree 5 that no structure will be erected, or hay, grain, or straw stack, or other inflammable material placed, or trees planted on said strip of land of said width.

Said grantee and its agents shall have the right to enter upon the premises of the undersigned for the purpose of patrolling said line and exercising the rights herein acquired and shall have the right to use trucks and other mechanical equipment appropriate to the exercising of such rights, but payment shall be made by the Company for damage, if any, to cross fences or livestock.

damage, if any, to crops, fences or livestock,

The said owner for herself, her heirs, executors and administrators, successors and assigns, covenant and agree to and with the said grantee, its successors and assigns that at the time of the ensealing and delivery of this easement she is well seized of the premises above described, as of a good, sure, perfect, absolute and indefeasible estate of inheritance in the law, in fee simple, and that the same are free and clear from all incumbrances whatever, except mortgage lien of and will forever warrant and defend the said easement against all and every

person or persons lawfully claiming the whole or any part thereof.

This agreement shall be binding upon and/or inure to the benefit of the heirs, successors or assigns of all parties hereto.

in Presence of:

Rosmond Halugka	Katheryn Behlow (SEAL)
	(SEAL)
James Haluska	(SEAL)
	(SEAL
	(SEAL
	(SEAL
	Wisconsin Michigan Power Company
4-30	Right-of-Way/Easement Data

Description NWXSW

Pasemont No.11441 N/W No. 3-8123-1

Ple Done S /6.73

Checkel Done S /6.73

Recorded: 5-2-73

Volume: 38 Misc.

Page: 231

Marian Lo Brabank, Dep.

Right

Wisconsin Michaesement

Wisconsin May/Fasement

Wisconsin May/Fasement

4-31

FOR AND IN CONSIDERATION of the sum of the Dollar (\$1.00) and other valuable consideration, receipt of which is hereby ack le ged, the undersigned grantor do hereby convey unt

WISCONSIN MICHIGAN POWER COMPANY

*WISCONSIN MICHIGAN POWER COMPANY
in, operate, relocate and replace a transmission line or lines of conductors, poles and other structures for the purpose of transmitting electrical energy, messages or signals, under and above ground, upon along or across (or along highways abutting) the bereinafter described strip of land. Forty... feet in width, being a part of the premises of the undersigned granters described as:

The SWxSE and SExSE, Section 33, Town 45 North, Range 33 West, Township of Hematite, Iron County, Michigan.

The ceater line of said strip of land is described as follows:

Beginning at a point on the north and south quarter line and 824' more or less north of the south quarter corner; thence running north 87°17' east for a distance of 1360' more or less; thence running north 77°30' east for a distance of 294' more or less; thence running south 83°59' east for a distance of 675' more or less to a point 881' more or less north and 2317' more or less east of the south quarter corner.

Together with the right to cut down, remove, trim and keep trimmed all trees and shrubbery (including roots) which the Company deems necessary to be cut down, removed or trimmed in order to clear the above described lines by 20 feet; and to relocate said idenced or relocated by public authority so as to interfere with such lines.

The Company may use trucks or other mechanical equipment to do any work appropriate to the installation and maintenance of said lines, provided, however, the Company shall be liable for all damages to livestock, growing farm or garden plantings, fences and shrubbery rights.

Nothing herein contained shall prevent the grantors from exploring and mining all minerals in said landso.

IN WITNESS WHEREOF, this instrument has been duly executed by the grantors this 26 M day of 18 deleases, 19 75 AMERICAN CAN COMPANY JOHN H. BARD Vice-President, AMES J. VALLOENBERG Assistant-Secretary County of (My commission expires STATE OF WISCONSIA Wisconsin County of AMARATHON Marathon PERSONALLY, came before me this John N. Bard and James J. Windenberg. 1973
the above named Je H. W. BARD John N. Bard and James J. Windenberg. 1973
the above named by the W. BARD John N. Bard and James J. Windenberg. 1973
the above named by the second transfer of the Second transfer of the corporation which excisited the foregoing postparties and they second NOTARY PUBLIC ASSESSMENT OF STREET WISCONSIN (My commission express 15 PERMANCHT SWXSE 11481 M. T. Gioson SEXSE 11482 on behalf of Wisconsin Michigan Piwer Company

EASEMENT

From American Can Co.

Rothschild, Wisconsin

To WISCONSIN MICHIGAN POWER COMPA

Iron Mountain, Michigan

Iron County

T. 45N Runse, 33M Sec. 33

Description, SWXSE 11481

SEXSE 11482

| Basement No. | 3-8123-121 | Right of Way Order No. | 3-8123-121 | File | Est. | Date & C. E. Checked | 27.6 | Date & E. E. 7.7.

For Register of Deeds' Sum

Recorded: 11-19-73 Volume: 174 Deeds Page: 532 Eileen Stebic Dep. R/D

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE	a. Record No. (1-2)	p. Kegion (3-4)	c. Forest (5-6)
SPECIAL USE	7.0	09	07
PERMIT	d. District (7-8)	e. User Number (9-12)	f. Kind of use (13-15)
	g, State (16-17)	4017 h. County (18-20)	814 k. Card no. (21)
FOR ELECTRIC THANSMISSION LINE Act of February 15, 1901			K. Lord No. (21)
This permit is revocable and nontransferable	26_	061	
Visconsin-Michigan Power Company (Nume)		401 South Carpenteron Mountain, MI	
(hereafter called the permittee) is hereby buried e operation and maintenance of a (Capacity)	lectric ditributio	n line energized .	r the construction, at 7200 volts
Ott		Forest, subject to the	e general provisions
and to the special provisions and requi	irements, items 23	to 32 on page	e(s) 3
to 4 attached hereto and mad	le a part of this perm	it. The location of t	his use is shown on
the map(#% which is (xxxx) a part of this pe E½SE½ Section 8, W½SW½ Sec	ermit, and is.(gre) idention 9 and SELNEL;	tified as follows: Section 17	
T47N, R36W, Houghton County	y, Michigan		
Length in O.51 (Miles) or 2674 × Width	15 = 0.92 (Acres)		
Construction or occupancy under this percentage of $\frac{3}{(Number)}$ months.	ermit shall begin with	in1 and cons	truction shall be
For this use, the permittee shall pay to	o the Forest Service,	U.S. Department of .	Agriculture, the sum
ofTen and no/100	Dol Dol	lars (\$ 10.00	
from May 23	19 75, to Decer	mber 31 19	75 , and thereafter.
ennually on January 1			
Ten and no/loo	Dol	ers (\$ 10.00	
provided, however, charges for this use in charges on a basis commonsurate with the	ay be made or readjust	ed whenever necessa	ry to place the
CHA BUCKBREL GARBER CAN BEGTER BUILD FOR TR	CONTRACTOR SOURCES	XX	
YCLLALILIX GCECOCCXXCOCCXXCCCXXCCX		XXX	XX
XEELESPALET XEXTERNESSERVESPARTE	ZYYXXXXXXXXXXXX	XXX	XX
	Прави		2/90-11 (5.00)
	H838 Hij 11653-		igan Power Company
	4-34	Right-of-Way/E	

1. Deselopment plane, layout plans, construction, reconstruction, or absention of improvements; or revision of layout or construction plane for this are cause be approved in advance and in writing by the Lorest Supervisor.

2. No further shall be cut or destroyed during construction of the transaction on the without first obtaining permission from the Forest Service. The permittee shall clear only the minimum area required for safe transaction in the forest of the minimum area required for safe transaction in use of current stronguler rates applicable to the safe by the Forest Service of similar further in the National Forest.

3. Explorest Construction of the Service of similar further in the National Forest.

3. Explorest Construction of the Service of similar further in the National Forest.

SERVICE CONSTRUCTION OF SERVICE OF SERVICE SERVI

monitional laws, ordinances, or regulations which are applicable to the area or operations covered by this permit.

12. The permittee shall do everything reasonably within its power and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon request of the Forest Service to prevent and suppress fires on or near the lands to be occupied under this permit.

13. The permittee shall pay the United States for any damage resulting from this use.

14. The temporary use and occupancy of the promises and improvements herein described may be sublet by the permittee to fund pairies only with the prior written approval of the Poreat Supervisor, but the permittee shall conditions of this permit by persons to whomanich premises made shalled.

13. This permit is subject to all valid claims.

16. No Menther of or Delegate to Commession Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit that may area benefits.

17. Upon abandouracit, termination, resocition, or cancellation of this permit, the permittee shall remove within a reasonable time all structures and improvements except those owned by the United States, and shull restore the site, missission of the permit the permittee shall remove within a reasonable period, they shall become the streen mission of the permit the permittee shall remove mittee the permittee fails to remove all such structures or improvements within a reasonable period, they shall become the site, mission of the permittee of the behavior of the permittee of liability for the cost of their removal and extraction of the site of the permittee of the permittee of the shall be come the site of the permittee and is within the provided in the sound of the sound of the permi

Wisconsin-Michigan Power Company Buried Electric Transmission Line Permit 05-23-75

- 23. The lands herein described is subject to certain rights reserved by or outstanding in parties other than the United States, and nothing herein shall abridge said rights or authorize prevention or obstruction of the reasonable exercise thereof.
- 24. The permittee shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of National Forest lands under this permit.
- 25. Rising waters, high winds, falling limbs or trees and other hazards are natural phenomenons in the forest that present risks which the permittee assumes. The permittee has the responsibility of inspecting his site, lot, right-of-way, and immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the Forest Service, of removing such hazards.
- 26. A service charge in addition to the regular fees shall be made for failure to meet the fee payment due date or any of the dates specified for submission of statements required for fee calculation. The service charge shall be one (1.0) percent per month of the fee from the date statement and fees were due or \$15, whichever is greater. If a due date falls on a nonworkday, the service charge will not apply until the end of the next workday.
- 27. Unless sooner terminated or revoked by the Regional Forester, in accordance with the provisions of the permit, this permit shall expire and become void on May 23, 1995, but a new permit to occupy and use the same National Forest land may be granted provided the permittee will comply with the then-existing laws and regulations governing the occupancy and use of National Forest lands and shall have notified the District Ranger not less than two years prior to said date that such new permit is desired.
- 28. The permittee agrees to permit the free and unrestricted access to and upon the premises at all times for all lawful and proper purposes not inconsistent with the intent of the permit or with the reasonable exercise and enjoyment by the permittee of the privileges thereof.
- 29. This permit is granted with the express understanding that should future location of Government improvements or road rights-of-way require the relocation of the permittee's improvements, such relocation will be done by the permittee at his expense within sixty (60) days following request to relocate.

Wisconsin-Michigan Power Company Buried Electric Transmission Line Permit 05-23-75

- The permittee agrees that no substantial change or alteration shall be made in the design, location, construction, voltage, or capacity of this line until application for such change shall have been submitted to and approved by the Forest Officer issuing this permit, his successor, or his authorized representative.
- 31. This permit shall not be exclusive. The Forest Service reserves the right to use or permit others to use any part of the permitted area for any purpose, provided such use does not interfere with the rights and privileges hereby authorized.
- 32. This permit shall have no force and effect until the permittee has signified acceptance of its provisions and conditions by signing below and returning the duplicate copies to the Forest Supervisor.

U. S. DEPARTMENT OF AGRICULTURE Forest Service

May 23, 1975

andle of to

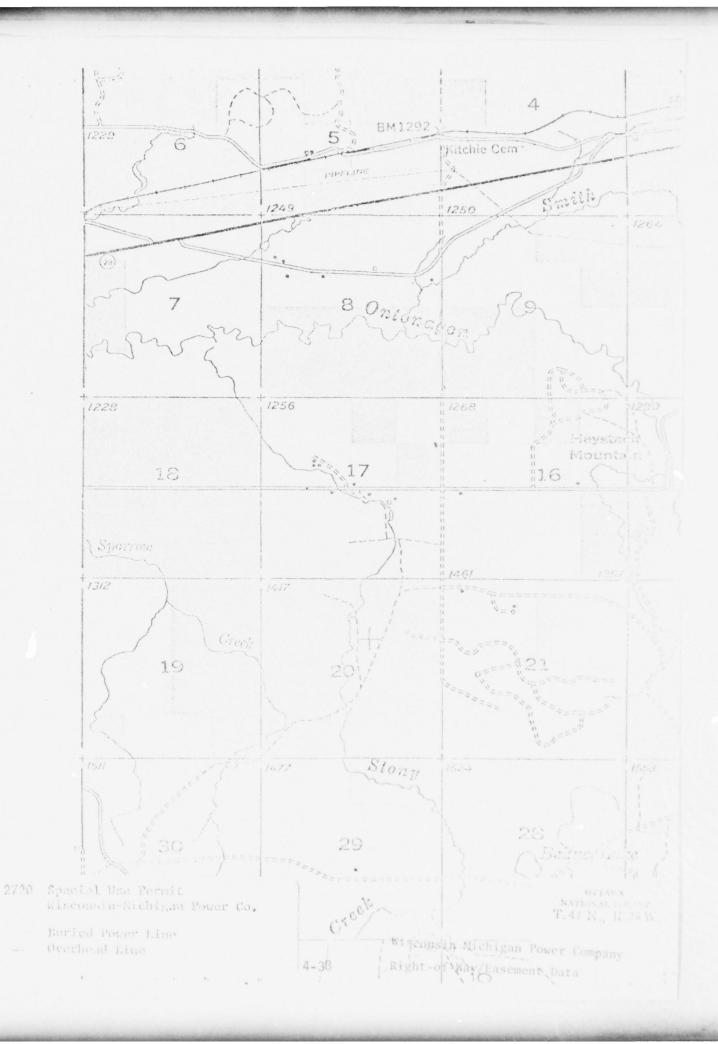
WISCONSIN-MICHIGAN POWER COMPANY

By: (16/3 acciss)

J. K. Babbitt

I certify that the terms and conditions of this permit have/have not been discussed with the permittee (if not, state why).

Terry W. Horman, District Ranger



SPECIAL USE FEE DOCUMENTATION FSM 2715

Forest P. littee Ottawa Wisconsin-Michigan Power Co. District Date of Permit Kenton 05-23-75-Initial Fee

to District, copy to Supervisor

New Permit Pr pare in duplicate - Original Present Fee and Date of Last Review

De miled Fee Appraisal (attach supporting documents)

- 1. Fee based on 5% of land value \$100 per acra x 5% = \$5.00 1 acre x \$5.00 per acra = \$5.00
- 2. Minimum annual fee per mile or fraction thereof is \$10.00 (Fef. FSM 2728.124). 1 mile x \$10.00 per mile = \$10.00

\$10.00 PREPAREN 25 (Signature) Norge

(such () allan Arnold D. Sartorf

Title Acting Forest Supervisor

5/23/75

Wisconsin Michigan Power Company Right-of-Way/Easement Data

b. Region (3-4) a. Record is (1-2) c. 1 orest (5-6) nited States Department of Agriculture FOREST SERVICE USE ONLY ornat Service SPECIAL USE d. District (7-8) c. User number (9-12) f. Kind of use (13-15) APPLICATION AND REPORT Ref: FSM 2712 g. State (16-17) PART I - APPLICATION (To be completed by applicant) application is hereby made for a permit to use National Forest land as indicated below See attached drawings, NSK 031375-RA-1 NSK 031375-RA-1 Route shown in yellow Amendment No. 3 to Permit dated 10-29-69 To extend electric service to Donald Schweitzer, who has applied for service at 4 locations. Width 2674 The cable will be #2 Al. caple 1.065" outside diameter, with cross linked polyethylene insulation & copper concentric neutral around cable. 25,000 V. cable. 7000 0127 Bir. liber (ischern 3-13-75 1401 South Carpenter Ave. R. Aschom, Eng. Technician Iron Mountain, Michigan Wisconsin Michigan Power Co. Right-of-Way/Easement Data 4-40

PART II - REPORT ON APPLICATION (To be completed by Farest Officer)

1. General description of the area and adaptability for the proposed use. Outline area on separate Map Sheet if neered-two clarify proposed use. At we Field Map Sheet Form \$100-19, if needed)

Reference EAR

COPY AVAILABLE TO DOC DOES NOT PERMIT FULLY LEGIDLE PRODUCTION

		FULLY I	EGIDLE	PRODUCTION
2. If previously under permit indicate:				
None (Name of Pennitee)	Ł			
		of Permits		
 Describe any encymberences on the land, such as withdrawals, power on map provided or on Form 5404-19. 	r projects, easen	ents, rights-of-w	ay, mining ch	aims, leases, etc. Show
Reference EAR				
4. State approximate amount and kinds of timber to be cut, recommended of merchaniable timber (a) to permittee at current danage approisal or	stumpage prices (b) to others the	method of scale	ing, include ii ri regular rimi	ecommendation on dispose er sole procedure.
None				
5. Is the proposed use in conformity with the District Multiple Use Plan		7		
The proposed use in conformity with the District Multiple Use Flan		Yes / Image		No.
Environmental impact statement prepared? (P.L. 91-170)	^	Yes (Attach) Yes (Attach) Yes		
Does it conform with the District Land Adjustment Plan?				
(NOTE: If "NO" is checked in answer to any of the above questions,				
6. Recommendations, including any factors which might effect the grantie	ng of the permit o	or future use of t	he fund.	
Reference EAR				
7. List conditions, which should be made a part of this permit (see, first)				
Reference EAR				
Referee EAR				
8. Fee recommendation (Prescribe 1 + 10 or comparison of an area log.		9. None and Ade		tter exp il. in a shall
		be shown on t	or permit	
		Wiscons	sin-Mich:	
Same as present permit rate.		1401 Sc	outh Carp	
				Michigan 49801
				Region
Approved 5-23-75 Arnold	. v v V (1			
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Wisconsin Michigan Power Company Right-of-Way/Easement Data

UNITED STATES DEPARTMENT OF THE PATERIOR BUREAU OF ENDIAN AFFAIRS Creat Lakes Agency Ashland, Wisconsin 54806

- SERVICE LEVE ACRUSTANT

This agreement, entered into between Wisconsin-Michigan Power Company of Iron Houstain, Michigan, and Mannahville Indian Community, Menominee County, Michigan, is for the sole purpose of granting to Wisconsin-Michigan Power Company, the right to erect and maintain electrical distribution system, the primary voltage of which does not exceed 7200 volts, over and across land described as follows and more definitely located on a plat to be furnished by the Wisconsin-Michigan Power Company to be attached hereto and made a part hereof:

Township 39 North, Range 25 West

Section 32

SWISE!

Section 32

NE4

Section 32

Full right and authority is hereby vested in Wisconsin-Hichigan Fower Company, its successors and assigns, to enter at all times upon the above described land for the purpose of constructing, renairing, removing, or replacing any portion of line or poles deemed necessary, with the further right to trim, remove, destroy or otherwise control any trees and brush which may, in the comor constitute a hazard in the construction and maintenance of said service line.

Payment of damages incident to construction of said service line will be waived in this instance, as the construction of this electric service line is expected to greatly benefit the residents of the Hannahville Indian Community.

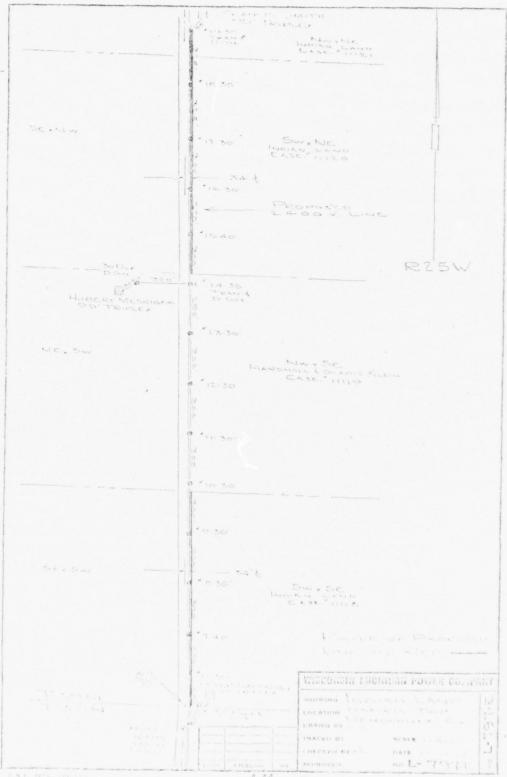
The authority for granting this service line right-of-way is contained in the Act of Congress approved on February 5, 1948 (62 Stat. 17) and Departmental Regulations 25 C.F.a. 161, Rights-of-Way, and is contingent on Wisconsin-Highgan Power Company, its successors and assigns, expressly agreeing to the follow-

- (a) To construct and maintain the right-of-way in a workmanlike manner.
- To indensify the landowers against any lia-
- sible to their ori inal condition upon completion of construction.

Wisconsin Michigan Power Company

ofDecember		
(/	WISCONSIN-MICHIGAN POWER COMPANY	
	AVA JUST	
VITNESSES:	By: J. K. Babbitt	
Maurice De Bruin	Vice President and General Man (title)	age
Maurel de Druin		
Beig Bolin	By: Que Santal Council, Joe Sa	gat
William G. Hallburton	Secretary, Tribal Council, Genevi	2 2 ru eve
pproved in accordance with the	Act of February 5, 1948 (62 Stat. 17), and IX. 161, for a period of 50 years.	
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epartmental Regulations 25 G.F	R. 161, for a period of 50 years. Bay Sw. B. J. Hiley, Superintendent	
(Date)	E. J. Miley, Superintendent Great Lakes Agency Ashland, Wisconsin 54806	
(Date)	E. J. Miley, Superintendent Great Lakes Agency Ashland, Wisconsin 54806	
(Date)	E. J. likey, Superintendent Great Lakes Agency Ashland, Wisconsin 54806	ž.
(Date)	Easement No. SWXSE 11118 Z	
(Date)	Easement No. SWXSE 11118	

Wisconsin Michigan Power Company Right-of-Way/Easement Data



4-44 Wisconsin Michigan Power Company Right-of-Way/Easement Data

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- 1. That the application of Misconsin-Michigan Power Cornary for construction of the requested exceleric service over the above lands is hereby transed,
- and one on or day as insident to construction of this electric service line harry are unived.

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Right-of-Way/ Easement Data

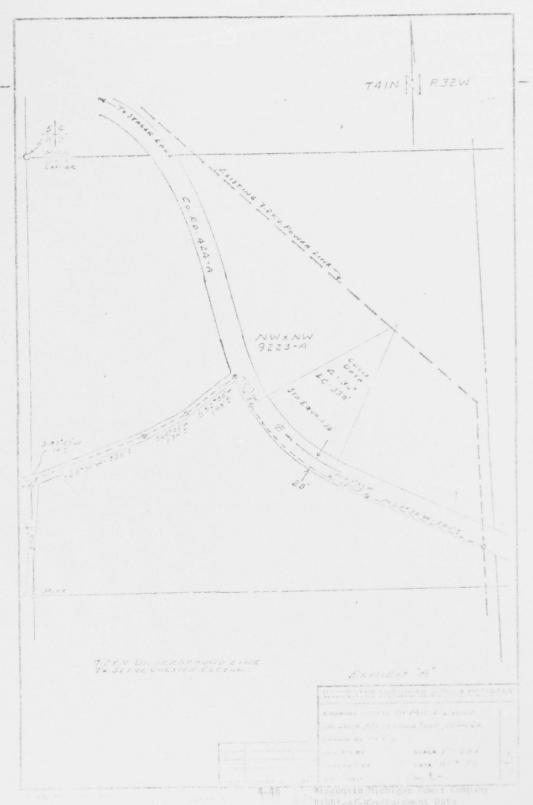
EASEMENT TO CONSTRUCT AND MAINTAIN ELECTRIC distribution LINE

FOR AND IN CONSIDERATION OF	Twenty-five Dollars (\$25.00)
	it band paid, the receipt of which is hereby acknowledged, the SEAR OF MICHE
by the DEPARTMENT OF NATURAL RESOURCES	Chereinafter referred to as "Department") acting under authority of the NABL
- IN CARLES TEATISMEN, and by virtue of	the subgridy conferred by Acr No. 10 10 A 1977 1
Claim to a ! Consin richion	Power Company a corporation thereinafter referred to as "Granter"
whose post office address is	Buth Caelda Street, Appleton, wisconsin
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following State-owned land:	t to go upon the land herein described and maintain same on, over and across t
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This easement is granted subject	ct to the following regulations and conditions:
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and under said land being more specifical	aid line of poles, towers, estructures, wires, cables and conduits across, everly described as fullows:
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EASEMENT TO CONSTRUCT AND MAINTAIN ELECTRIC distribution LINE

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sisting of intesting merca attractures, wires, cables as ances and fixtures necessary for the purpose of trans-	mitting and distributi	and electricity and or con	nducting a resonant
- ration business, together with the right to go upon a	ne land herein describ	ed and harm our sam and	
Tollowing State-owned rand:			
Mastodon	County of	Iron	Statement from
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This easement is granted subject to the fol-	lowing regulations and	Committee	
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	lv-i	sconsin Michigan Pov	ver Company
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ized representative of the Department prior to commencing operations under this ensempt, so that the Department shall be properly notified as to the time of place that such operations shall begin the State owned by the Sta (3) Countee, its successors or assigns by the acceptance of this instrument, agrees that may relocation of the line constructed under this consent will be made only upon approval of the Department before such relocation taken (4) Grantee, its successors or assigns, accepts this ensement subject to all prior and valid on ements, per-ve been granted on said land. (5) Granter, its successors or assigns, and its br their agents and employees may cut, trim and recove all brush and trees which may interfere or threaten-jo interfere with or be hazardous to the construction, operation and the of the CLEAR IDELECTION line as herein described. (6) figurate, its sucressors or assigns, agrees that no herbicides to control tree, shrub, or other plant growth on the land herein described shall be used without first securing written permission from the Department or authorized field representative. (7) Grantee, its successors or assigns, agrees that all commercial forest products cut by the Grantee here-under in the construction and maintenance of said line shall be the property of the Department and shall be est and soled or decked as directed by the Department's authorized representative. (11) In case the said casement herein conveyed shall not be used by Grantee, its successors and assigns, for period of 10 years, from and after the date of issuance, then and in that event said ensement shall terminate. The antee herein, for itself, its successors and assigns, agrees upon abandonment of its line and upon request of the other of said land showing a prima facie title to same, to release and Quit-claim all rights secured hereby on said (12) In the event of abandonment of the rights herein conveyed, Grantee agrees to recove its property from premises in a good and workmanlike manner and in a condition satisfactory to the Department's authorized field (13) It is expressly understood that the Grantee shall not assign this easement or any parties thereof to a person other than the owner of card land, as provided in paragraph 11 hereof, without first securing the written of the Department of Natural Desources for the State of Michigan. No application to assign will be conwidered unless the assignee is organized for the purpose of operating a public utility business. (14) The Grantee, its successors or assigns, shall hold hardless the Scate of Michigan for all do upon caused to third persons or property outside of the right-of-way conveyed by this easement arisine out of the brantee in its operations on the right-of-way hereby conveyed. IN WITNESS WHEBLOF, the Department of Natural Resources by authority of the Natural Parameter Courses com has used this instrument to be executed for the State of Michigan by its Deputy Director, this 17th day of March David H. Prop to this 14th day of March Marcomission rapires Movember 16, 1977 6511 Wisconsin Michigan Power Company Jay A. Schafer, Eaton County acting in



DEPARTMENT OF NATURAL RESOURC .

PERMIT

Wisconsin Michigan Power Company Mr. R. J. Linssen 1401 South Carpenter Avenue Iron Mountain, Michigan 49801

CONDITIONAL PERMIT

Permit No. 75-1-25 Date Issued August 4, 1975 Extension Expiration October 1, 1975

This permit is issued under provisions of the Inland Lakes and Streams Act (Act 346, P.A. 1972).

Construct a plowed electric cable crossing

Sect. Thirn, Range, Subland Lot Number East Branch Ontonagon River Houghton 9, 147N, R36W

Authority grafited by this permit is subject to the following limitations:

- A The permitte in exercising the authority granted by this permit shall not cause unlawful collution as defined by Act No. 245 of the Public Acts of 1929, as amended. B. This permit shall be kept at the sile of the work and available for inspection at all times during the duration of the project or until its date of expiration. C. All work shall be completed in accordance with the plans and specifications submitted with the application and/or plans and specifications attached hereto.
- D. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved here
- E. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act \$3 of the Public Acts of 1974; and comply with each of the requirement.
- F. This permit does not convey property rights in either Real Estate or material, no does it authorize any injury to private property or invasion of public or private rights, nor does it waive the nocessity of sceking federal assent, all local permits or complying with other state statutes.
- G. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights H. Periodice shall notify the Hydrological Survey Division, DNR, in writing, within ren days of the completion of the project authorized herein.

This permit is granted conditionally under circumstances of emergency or urgency to protect property or general public welfare. Should the permit result in an unreasonable encroachment, interference with adjacent riparians or the public trust, permittee agrees, in exercising the authority granted herein, to make adjustments in the project as may be ordered by the Department of Natural Resources.

Construction of the stream crossing shall be subject to the Specifications for Protection

4-49

RIGHT-OF-WAY AND ANCHOR AND TREE-TRIMMING EASEMENT

KNOW ALL MEN BY THESE PRESENTS, That called the "grantor") and State of	his wife, of the county of
ceing hereinafter collectively called the "gr consideration, the receipt whereof is hereby unto The Ontonagon County Rural Electrificati and to its successors or assigns, the right t grantors situated in the county of and described as follows:	antor"), for a good and valuable acknowledged, do hereby grant on Association, a corporation, o enter upon the lands of the
(1) to place, construct, operate, repair, thereon and in or upon all streets, roads or electric transmission or distribution line or cut and trim trees to the extent necessary to line or systems and to cut down from time to dangerous trees that are tall enough to strike (2) to place, construct, repair, maintain anchors, anchor stubs and guy wires necessary operation, replacement, repair and maintenance or upon any road or highway abutting the lands transmission or distribution line or system; interfering with the placing and maintenance can wires;	nighways abutting said land, an system, including the right to keep them clear of said electric time all dead, weak, leaning or the wires in falling; relocate and replace thereon or advisable for the construction, in and upon said lands and in above described, of an electric and to cut and trim trees of said anchors, anchor stubs, and
and releases any right of interest she may have herein granted, including the right of dower, in the above described lands.	the grantor hereby relinquishes to inconsistent with the easement distributive share or homestead
IN WITNESS WHEREOF, the grantors have set to day of, 1972.	their hands and seals this
WITNESS:	
	(L.S.)
(Acknowledgme	(L.S.)
STATE OF)	,
COUNTY OF SS.	
On this day of in the y Notary Public in and for said county, personal	ear 19 A.D. before me, a ly appeared_
Person_, described in and who executed the wit erknowledged the same to befree act	to me known to be the same
Notary Publi	
My Commissio 4-50 On	n Expires:tonagon County Electrification Assn

4.3 - POWER INTERRUPTIONS/DOWNTIME DATA

	Page
Wisconsin Michigan Power Company	4-51
Marquette Board of Light and Power	4-53
Ontonagon County Rural Electrification Association	4-63

DATE	NO	Œ	Z E	TIPE	CAUSES	
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Wisconsin Michigan Power Company Power Interruptions/Downtime Data 4-51

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Wisconsin Michigan Power Company Power Interruptions/Downtime Data 4-52 V MARQUETTE POWER OUTAGE #3 Circuit - August 12, 1971 Time of Outage: 12:57 P.M. Back On: 1:37 P.M. Total: 40 Minutes A jumper wire vibrated loose on one-phase wire at the Shiras Steam Plant by the railroad tracks. This was probably caused by the gusty wind conditions at this time. Line crews patroled #3 Circuit and located the loose jumper wire and corrected the problem. Areas affected: Shiras Hills County Road 553 and Sands Negaunee Township Holiday Inn Area West Washington Street Fair Avenue Area Lincoln Avenue Area There also were some trees on the line at Lake Enchantment and South Negaunee Township, and some fuse trouble on West Washington Street caused by the switching on #3 Circuit. Marquette Board of Light and Power Power Interruptions/Downtime Data

POWER OUTAGE - AUGUST 15, 1971 At approximately 8.49 A.M. on Sunday, August 15, 1971, the Shiras No. 1 Generating Unit went off the line without warning causing the entire system except the two-phase circuit to open up. Inasmuch as it was Sunday, the No. 4 Plant was not manned, which caused some delay in restoring power to the circuits until operators could get to the plant and start up diesel engines. Customers affected were as follows: No outage for 1,500 customers. 2,500 customers on No. 1 circuit off for 1 hr. and 10 minutes. 2,500 customers on No. 1 circuit off for 1 hr. and 20 minutes. 2,000 customers on No. 3 circuit off for 1 hr. and 23 minutes. 500 customers on rural south circuit off for 1 hr. and 35 minutes. Cause of the outage appeared to be a faulty Station Lightning Arrestor. Will be sent to General Electric Company for final determination and checking of arrestors. Shiras Plant was back on line about 7 P.M. with the Diesel Plant (No. 4) off at 8:30 P.M. Heller J. H. V. C. Wiltala,

Marquette Board of Light and Power Power Interruptions/Downtime Data

4-54

POWER OUTAGE - AUGUST 16, 1971

At approximately 7:13 A.M. a superheater tube in the No. 1 boiler at the Shiras Steam Plant ruptured causing a rapid loss of pressure, which necessitated the operators opening up the Water Works, No. 3, and South Rural circuits. The No. 1 circuit and the two phase circuits were not affected.

4,000 customers not affected.

2,500 customers on Water Works circuit off for 30 minutes.

2,000 customers on No. 3 circuit off for 33 minutes.

500 customers on South Rural off for 35 minutes.

Repairs are being made at the Steam Plant. The Diesel Plant, (No. 4), the Hydro Plants, (No. 1, 2, & 3), and the auxiliary diesel engine at Shiras Plant were used to meet load requirements during Monday. The No. 1 Hydro Plant was used for peak demands at noon hour. Shiras Plant back on line at 5 A.M., Tuesday, August 17, 1971.

THE BOARD OF LIGHT AND POWER

A. Cho, A. M. C. C. Wilbert W. Wiltala,

Director

WWW/kim

Marquette Board of Light and Power Power Interruptions/Downtime Data 4-55

-47

MARQUETTE POWER OUTAGE #2 Circuit - July 28, 1971

Time of Outage: 10:31 A.M.

Back On: 11:12 A.M.

Total: 41 Minutes

A large maple tree fell across the #2 circuit and also across the tie line between #2 and #4 Plant. The breaker opened immediately on the #2 circuit at #2 Plant and the tie line remained energized. A customer called giving immediate location of the trouble and it was determined that the tie line must be opened before the tree could be removed. When the tie line was opened the tree was removed, there was apparently no permanent damage to either circuit. Power was restored to the tie line, and then to the #2 circuit, with everything back to normal at 11:12 A.M.

BOARD OF LIGHT AND POWER

Roland Lindeblad,

Marquette Board of Light and Power Power Interruptions/Downtime Data 4-56

Board of Light and Pomer

GITY OF MARQUETTE MICHIGAN~49855 P. O. BOX 40

WILBERT W. WIITALA
DIRECTOR
TELEPHONE 226-3583

February 10, 1970

At approximately 7:25 A.M. on January 19, 1970, the governor belt on \$\psi 1\$ wheel ceased to function properly and as a result the unit rejected all load. As a result of the above, system frequency droppped from a normal 60 cycles to approximately 50 cycles. At approximately the same time all main circuit breakers including the bus tie breaker at \$4\$ Plant opened.

The results of the above sequences separated the two-phase system from the Steam Plant. The two-phase system at this time ran low on voltage and frequency until such time as the Negaunee Township circuit was opened to bring voltage and cycles up to a level so as to permit putting \$\psi\$1 wheel back on.

At 7:30 A.M. the South Rural circuit was opened to shed load to bring frequency up to a normal level on the Steam Plant end of the system.

Bus tie-breaker, #1 circuit breaker (tie-line), tie-line from #2 Plant to #4 Plant circuit breakers were closed and additional generation put on at #4 Plant.

At 7:55 A.M. South Rural circuit was closed and all systems at this time were back to normal.

The duration of the time that the City Hall circuit and the Negaunee Township circuit were low on voltege was approximately 20-25 minutes.

POWER OUTAGE, FEBRUARY 6, 1970

At approximately 7:07 A.M. on February 6, 1970, a flashover occurred on the brush rings on the exciter at the Shiras Steam Plant. This lost our generation from this source and caused the safety diaphragm on the turbine to rupture. Necessary repairs were made to the unit immediately and the unit was back on the line at 10:50 A.M.

The two-phase circuit serving portions of the downtown and North Third and Fourth Streets was not affected. The remainder of the city was affected for varying periods of up to two hours until sufficient generation could be started to handle the loads. It was necessary to start all seven engines at the Diesel Plant and #1, #2, and #3 Hydro Plants and the stand-by Diesel at the Shiras Steam Plant.

Customers affected were as follows:

No outage for 1,500 customers.

7,500 customers off for 28 minutes or more.

2,500 customers back on after 28 minutes.

2,000 additional customers back on after 33 minutes.

2,500 additional customers back on after 1 hour 55 minutes.

500 additional quetomore back on after 7 ho

23 minutes

The above was reported to Mr. Troffit of the Federal Power Commission, Washington D. C. at 4:10 P.M. (Phone 1-202-962-1307). Also called Mr. Croy of the Michigan Public Service Commission at 4:15 P.M. and reported the above (Phone 1-517-373-3263).

POWER OUTAGE ON SEPTEMBER 29, 1969

A top of a birch tree, (about 8" diameter), located approximately 20' from our No. 1 circuit line on the Big Bay Road, just north of the Dead River Bridge, came down onto the line, causing a short circuit at 12:37 P.M., C.D.T. The line fuses failed to operate, and the main circuit breaker and the main generator circuit breaker at the Shiras Plant opened up causing most of the City to be without power for periods ranging from ten minutes to twenty-six minutes. The south rural customers were out for a total of thirty-nine minutes. Settings on our circuits are being checked for proper coordination.

Outage occurred at 12:37 P.M.

No outage for 1,500 customers, 3,000 K.W. estimated.

Waterworks line on at 12:47 P.M., 2,500 customers, 3,000 K.W. estimated.

#3 line on at 12:55 P.M. - 18 minutes, 2,000 customers, 5,000 K.W.

#1 line on at 1:03 P.M. - 26 minutes, 2,500 customers, 5,700 K.W.

South Rural on at 1:16 P.M. - 39 minutes, 500 customers, 1,000 K.W.

Called Mr. Croy, Michigan Public Service Commission, at 4:45 P.M., Phone 1-517-373-3263. Called Federal Power Commission at 4:35 P.M., No. 1-202-962-1307 - No answer. Called again on September 30, 1969 at 5:55 A.M. and reported to Mr. Troffit.

Marquette Board of Light and Power Power Interruptions/Downtime Data

POWER OUTAGE ON SEPTEMBER 9, 1969 16,000 KW at 11:13 A.M.

Called Federal Power Commission, phone 1-202-962-1307, and reported outage to Mr. Troffit at 3:45 P.M. Also called Mr. Croy, Michigan Public Service Commission, phone 1-517-373-3263, at 3:50 P.M. and reported outage.

See attached notes on cause of trouble. Converter for gas burning safety controls failed, causing burners to shut off before coal could be started.

Date: September 9, 1969

Power Outage on whole system, 16,000 KW load. System off at 11:13 A.M., total 9,000 customers.

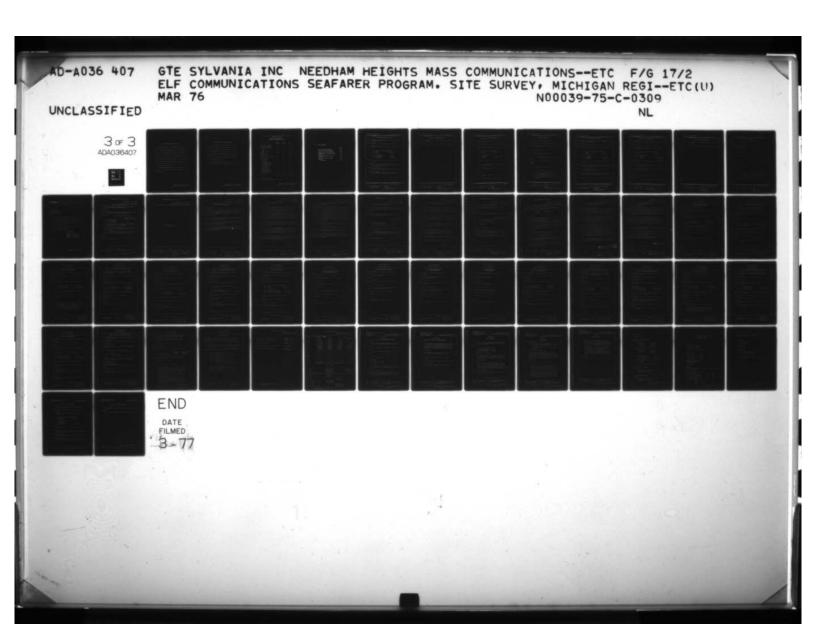
Two-phase line back on at 11:22 A.M. 7,500 customers still off.

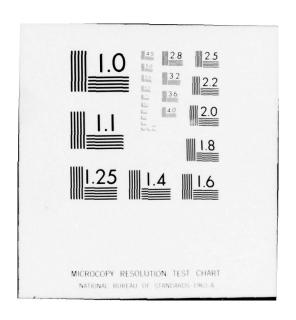
Waterworks circuit on at 11:32 A.M. 5,000 customers still off.

#3 circuit back on at 11:42 A.M. 3,000 customers still off.

#1 circuit back on at 12:52 P.M. 500 customers still affected.

Portions of the Rural Area remained off until approximately 2:30 P.M.





OUTAGE ON SUNDAY, NOVEMBER 16, 1969

On College Avenue, immediately west of Presque Isle

Avenue, a large gray squirrel came in contact with the

primary lines on our waterworks circuit at 7:37 A.M., Sunday,

November 16, 1969, causing two phases of conductors on

two pole spans to come down. The entire waterworks circuit

serving the entire east side of the city was interrupted

until the damaged line could be isolated. Power was restored

to most of the area at 8:18 A.M. and to the remainder of

the area at 10:32 A.M. after Light and Power crews were

able to replace the downed wires.

Area interrupted until 10:32 A.M. was from Magnetic Street north to Fair Avenue and from St. Luke's Hospital to Lake Shore.

POWER OUTAGE ON SEPTEMBER 8, 1969

Outage occurred approximately 6:30 P.M. and lasted about fifteen minutes. The trouble occurred in the 400 block of East Crescent Street, and was caused by tree branches burning off a tie line to a transformer, making it too dangerous to repair without shutting off power to the waterworks circuit. Areas affected were the entire east side of Marquette and sections of the downtown area, south of Vashington Street.

A short outage on the South Rural line occurred this morning, and was caused by a malfunctioning regulator.

THE ONTONAGON COUNTY RURAL ELECTRIFICATION ASSOCIATION Ontonagon, Michigan

SERVICE INTERRUPTION REPORT

January 1, 1972 - December 31, 1972

	Pelkie	Herman	Aura
Power Supply - Planned	X	X	X
Power Supply - Emergency	X	X	215
Cooperative - Planned	X	X	5
Fuse or Breaker Operations			
10 amp T	X	X	X
10 amp -	X	X	103
Breaker Operations	X	X	X
Animals	4	X	118
Insulator Failure	X	X	X
Arrester Failure	X	X	229
Hardware Failure	1	X	21
Loose Connector or Hot Clamp			68
Lightning	12	147	405
Trees - Windstorm	33	105	X
Trees - Wet Snow	X	X	75
Tra sformers			
CSP Overload	1	X	10
Transformer Burn Out	X	X	X
Fuse/Lightning Burn Out	X	X	32
Man Made Interruptions			
Cars Hitting Poles	X	X	X
Cutting Trees	X	X	X
Cars Hitting Wires	X	X	X
Member Facilities			
Defective Appliances	X	X	X
Defective Wiring	X	X	X
Repairs Beyond Meter	X	X	X
Miscellaneous	9	11	_33
TOTAL	60	263	1,314

²⁵ people out 1 hour = 25

Average Per Customer = 3.8 Per Year Per Service

4.4 - RATES AND CHARGES

	Page
Upper Peninsula Power Company	4-64
Wisconsin Michigan Power Company	4-72
Marquette Board of Light and Power	4-84
Ontonagon County Rural Electrification Association	4-106
Alger Delta Cooperative Electrical Association	4-111
Crystal Falls Electric and Water Department	4-112
K. I. Sawver AFB	4-114

RATE "WP." - LARGE LIGHT AND POWER

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 200 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's interconnected system

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

Capacity charge per kw of billing demand per month

First 200 kw of less \$1,200.00 Next 2,800 kw 5.10 per kw Over 3,000 kw 4.75 per kw

Energy charge per kwh per month

First 500,000 kwh 1.50c per kwh Next 5,500,000 kwh 1.40c per kwh Over 6,000,000 kwh 1.35c per kwh

MINIMUM CHARGE.

The capacity charge included in the rate plus energy but not less than \$1,200.00

TERMS OF PAYMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND.

Billing demand shall be the maximum 15 minute demand during the mooth but not less than $200\ kw$.

ADJUSTMENT OF OFF-PEAK HOURS:

Demands treated during off-peak hours may, at the option of qualitying customers, be adjusted as provided in Off-Peak Service Rule 18

CONTRACT.

un year or more

Issued: October 2, 1975

Effective. For service rendered co and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No U-4685

By: C. F. Rogers, President Houghton, Michigan Upper Peninsula Power Company

4-64 Rates and Charges

M. P. S. C. No. 5 UPPER PENINSULA POWER COMPANY Houghton, Michigan

First Revised Sheet No. 15.1 Cancels Original Sheet No. 15.1

RATE "WP-1" - LARGE LIGHT AND POWER

FUEL CLAUSE: (continued)

This rate is subject to the Company's Standard interconnected system fuel adjustment.

RULES APPLYING:

Service is governed by the Company's Standard Rules and Regulations.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1974

issued under the authority of Order of Michigan Public Service Commission,

Seprember 29, 1975 in Case No. U-4685 By: G. F. Rogers, President

Houghton, Michigan 4-65 Upper Peninsula Power Company Rates and Charges

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RATE "P-1" - LIGHT AND POWER SERVICE

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 25 kilowatts or more

TERRITORY APPLICABLE:

all territory served in the Company's interconnected system

CHARACTER OF SERVICE:

single of three-phase, alternating current, 60 hertz at standard available voltages.

RATE

First 25 kw or less \$150.00

Over 25 kw @ 5 85 per kw

Energy barge per kwh per month

First 1,000 kwh 3.80c per kwh
Next 9,000 kwh 1.80c per kwh
O.er 10,000 kwh 1.40c per kwh

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$150 00

TERMS OF PAYMENT:

the above charges. The net amount is applicable to: payment within 21 days from the date of bill

DETERMINATION OF BILLING DEMAND:

Billing demand small be the maximum 15 minute demand during the month but not less than $25~\mathrm{kw}_{\odot}$

CUNTRACT.

One year or more

FUEL ULAUSE:

Inis rate is subject to the Company's standard interconnected system tuel adjustment.

RULES APPLYING:

Service is governed by the Company's Standard Rules and Reg-

issued. October 2, 1975

By: G. F. Rogers, President

Effective: For service rendered n and after Ocrober 2, 1935

Issued under the authority of Order of Michigan Public Service Commission, dated regrember 29, 1975 in Case No. U-4685

4-66 Upper Peninsula Power Company
Rates and Charges

RATE "C-1" - GENERAL SERVICE

WHO MAY TAKE SERVICE:

Any customer for commercial or industrial purpose

TERRITORY APPLICABLE:

All territory served in the Company's interconnected system.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Service Charge: \$5.00 per customer per month plus,

Energy Charge:

5,60c per kwh for the first 1000 kwh used per month

5.00c per kwh for the excess

MINIMUM CHARGE:

The service charge included in the rate. For seasonal type customers the angual service charge shall be 12 times the monthly service charge

TERMS OF PAYMENT:

Bills are rendered net with payment due 21 days from date of bill.

CONTRACT:

N he required

: EL CLAUSE:

This tate is subject to the Company's standard interconnected system fuel adjustment

RULES APPLYING:

(1) Service is governed by the Company's Standard Rules and

Regulations

(2) Conjunctional billing will not be permitted in cases where the customer is presently being served lighting and power loads through separate meters. In these instances, whenever the customer at his expense will arrange his wiring to receive energy through one single metered service, then this rate shall apply to his entire requirements

Issued: October 2, 1975

By: C. F. Rogers, President

Effective: For service rendered on and

after October 2, 1975 Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

> 4-67 Upper Peninsula Power Company Rates and Charges

Houghton, Michigan

RATE "WP-2" - LARGE LIGHT AND POWER

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 200 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's Iron River district.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

Capacity charge per kw of billing demand per month First 200 kw or less

Next 2,800 kw 2.60 per kw Cver 3,000 kw 2.40 per kw

Energy charge per kwh per month

First 500,000 kwh 2.15¢ per kwh Next 5,500,000 kwh 2.05¢ per kwh Over 6,000,000 kwh 2.00¢ per kwh

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$600.00.

TERMS OF PAIMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 200 kw.

ADJUSTMENT OF OFF-PEAK HOURS:

Demands treated during off-peak hours may, at the option of qualifying customers, be adjusted as provided in Off-Peak Service Kule 18.

One year or more.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

issued under the authority of Order of Michigan Public Service Commission,

dated September 29, 1975 in Case No. U-4685 By: C. F. Rogers, President

Houghton, Michigan

4-68 Upper Peninsula Power Company Rates and Charges

M.P.S.C No 5 UPPER PENINSULA POWER COMPANY Houghton, Michigan

Second Revised Sheet No. 41.0 Cancels First Revised Sheet No. 41.0

RATE "P-2" - LIGHT AND POWER SERVICE

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 25 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's Iron River system.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz at standard stailable voltages.

RATE:

Capacity charge per kw of billing demand per month
First 25 kwh or less
Over 25 kw @ \$4.30 per kw

Erergy charge per kwh per month

First 1,000 kwh

Next 9,000 kwh

Over 10,000 kwh

4.35¢ per kwh
2 35¢ per kwh
1 95¢ per kwh

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$100.00.

TERMS OF PAYMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be a maximum 15 minute demand during the month but not less than $25\ \mathrm{kw}$.

CONTRACT:

One year or more

FUEL CLAUSE:

This rate is subject to the Company's standard Iron River system tuel adjustment.

RULES APPLYING:

Service is governed by the Company's Standard Rules and Regulations.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C. F Rogers, President Houghton, Michigan

4-69 Upper Peninsula Power Company Rates and Charges M.P.S.C. No. 5 UPPER PENINSULA POWER COMPANY Houghton, Michigan

Original Sheet No. 42.1

RATE "WP-2" - LARGE LIGHT AND POWER

FUEL CLAUSE:

This rate is subject to the Company's Standard Iron River system fuel adjustment.

RULES APPLYING:

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F-1 300 1-4

T

Service is governed by the Company's Standard Rules and Regulations.

Issued: October 2, 1975

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C F Rogers, President

Houghton, Michigan

4-70 Upper Peninsula Power Company Rates and Charges T

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M P S C No 5 UPPER PENINSULA POWER COMPANY Houghton, Michigan

Third Revised Sheet No. 32 0 Cantels Second Revised Sheet No. 32 0

RAIE "C-2" - GENERAL SERVICE

WHO MAY TAKE SERVICE.

Aux istomet for immerial or industrial purposes

TERRITORY APPLICABLE:

All 'ercitory served in the Company's Iron River district.

CHARACTER J. SERVICE:

Single of three-phase, siternating urrent, 60 hertz, at standard symbols voltages.

KATP.

Se vice Charge: 55.00 per us omer per month plus.

Energy Charge.

 \pm +01 per kwh for the riest 1000 kwh used per month 3 +50 per kwh for the extess

MINIMUM CHARGE:

The service charge included in the rate. For seasonal type cust mers the annual service charge shall be 12 times the monthly service charge.

TERMS OF FAIMENT.

B. . . a are sendered net with payment due 21 days from date of bill

CUNTRACT

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BUEL CLAUSE

This rate is subject to the Company's standard lion River system fiel adjustment

RULES APPLY.No.

- (1) Service is governed by the Company's Standard Rules and Regu-
- the listement is presently being served lighting and power that it is presently being served lighting and power that the cough separate meters. In these instances, whenever the continer at his expense, will arrange his wiring to receive energy through the single metered service, then this late shall apply this entire requirements.

Issued: October 2, 9/5

Effective: For service rendered on and after October 2, 1975

Issued under the authority of Order of Michigan Public Service Commission, dated September 29, 1975 in Case No. U-4685

By: C. F. Rogers, President Houghton, Michigan

4-71 Upper Peninsula Power Company Rates and Charges - WMPCO WISCONSIN MICHIGAN POWER COMPANY
807 SOUTH ONEIDAST. • APPLETON. WISCONSIN 54911 • AREA CODE 414 734 1411

December 4, 1975

Mr. Pasquale Gallo, P.E. Regional Consultant Williams and Works 611 Cascade, West Parkway Grand Rapids, Michigan 49506

Dear Mr. Gallo:

Mr. O. R. Boll of our Company asked me to forward the rates for Wisconsin Michigan applicable to Michigan. The attached rates were recently proposed by the Michigan Public Service Commission as a result of our recent rate application. These rates approximate the best guess as to what our rates will be like in 1976.

Naturally, our rates will increase with inflation and, therefore, you should project higher rates beyond 1976.

If you have any further questions, please contact us.

Very truly yours,

WISCONSIN MICHIGAN POWER COMPANY

Kaule 7. Maggs Director of Customer Relations

Karle F. Naggs/jb

Attachments

cc - Mr. O. R. Boll

Wisconsin Michigan Power Company Rates and Charges

WISCONSIN MICHIGAN POWER COMPANY

	Cancels Pirat Ruviand Sheet No. 10.0
GENERAL SE	CONDARY SERVICE - PATE C3 1
AVATLABILITY	
	econdary sarvice for one year or more for
general commercial, industrial, or	governmental purposes.
HOURS OF SERVICE	
Twenty-four.	
CHAMACTER OF SERVICE	
The state of the s	single-phase at 120/240 volts for lighting
service, or single or three-phase a	
RATE	
Fixed Charge	
\$4.30 par	month for each service connection.
	Rilling Pariods
	July-October November-Ju
Energy Charge per Kilowatt-hou	
First 500 kWh per month Next 29,500 kWh per month	4.5¢ 4.5¢ 3.
Over 30,000 kWh per month	4.5¢ 3.1 3.2¢ 2.
	cost of fuel applicable to all energy, see
30,000 kilowatt-hours per i	of-use credit applicable to all onergy over
Minimum Charge	onch, see sheet 15.02.
and the second s	othly minimum charge shall be the fixed charge
For nuxiliary pervice the print	thly minimum charge shall be ea provided in
conditions of delivery. See	paragraph 6, Conditions of Delivery.
Delayed Payment Charge	
	itional one and one-half percent (1.5) of the
	licable credits and adjustments, shall be
each bill.	enty-one days from the date of rendition of
CONTRACT	
Form No. 3.	
THE THE TWO DAY	
TERRITORY	
All areas served in Mich	nigan.
Imued No. Day Year	Effective Mo. Day Year

4--73

Rates and Charges

WISCONSIN MICHIGAN POWER COMPARY

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5.5337	MILMAURCE . HIDO

Third Revised Sheet No. 10.02

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Second Ravioed

Sheet No. 10.02

GENERAL SECONDARY SERVICE - RATES C3 1 (Continued)

HOURS-OF-USE CREDIT

This rate is based on a monthly use of measured demand of 300 hours or less. for each whole hour of such use in excess of 300 a credit of 0.0010c per kilowatthour will be allowed on all energy used in excess of 30,000 kilowatt-hours per routh. Monthly use of demand shall be determined by dividing the kilowatt-hours used in the mouthly billing period by the measured demand for the same period. This credit shall be applied to net bills.

DETERMINATION OF DEHAND

- 1. Measured demand is defined as the maximum rate at which energy is used for may period of fifteen consecutive minutes during the month and shall be measured by permanently installed demand indicators.
- 2. A demand indicator shall be installed after the customer's monthly use of energy under this rate has been 30,000 kilowatt-hours or more for three consecutive months and may be removed after such monthly use has been less " an 30,000 kllowatt-hours for twelve consecutive months.
- 3. Where more than one indicator is used to measure a customer's demands, the and of the apparate demands shall be the measured demand except that where more than one secvice connection is used at the election of the company, provision shall be made for obtaining simultaneous demands. In which case to simultaneous demands shall be the measured demand.

Year Effective Me. Vice President Milwaukee, Wisconsin Insued By. Kame of U Scer Title 4-75 Wisconsin Michigan Power Company

Rates and Charges

Cancels Original

Elbert No. 10.03

CENERAL SECONDARY SERVICE - RATES Cg 1

CORDITIONS OF DELIVERY

- 1. The company will generally furnish single-phase, 60 hertz service at 120/240 volts for lighting and single or three-phase service at 240 volts for power. Three-phase, four-wire service at 120/208 volts for combined light and power purposes and three-phase, 480 volt power service will be furnished in accordance with the Electric Service Rules and Regulations of the company.
- 2. When lighting service is furnished through one meter and power service through another, the registrations of the two meters will be added for billing purposes if the meters are installed at the same location. Where separately metered service is furnished for emergency exit lighting, fire alarm system or fire pump purposes, the energy used will be accumulated and billed with the regular service provided that it is furnished from the service connection which supplies regular service. In such cases the customer shall pay the fixed charge for each meter installed.
- 3. Service under this rate is for general use in commercial, industrial, and governmental establishments, including any group of two or more dwelling units which are served through one meter and comply with the Electric Service Rules and Regulations of the company governing resale. When farming and consercial or industrial operations are combined, the applicable rate shall be determined by the predominant use of service.
- 4. At the request of a customer, service will be furnished under this rate at the available primary voltage by special arrangement under which the customer will agree to furnish, own, and maintain at his expense all apparatus and material necessary for proper utilization of service at such voltage. In such cases the service will be metered at the supply voltage and the kilowatt-hours registered will be reduced 3% and the measured demand will be reduced 2-1/2% for billing purposes.
- 5. Temporary service is available under this rate upon the payment in advance of the company's estimated cost of providing and installing all facilities required especially for such service, plus the estimated cost of removing such facilities, less the estimated salvage value of the property removed. In no case shall the net payment by the customer be less than \$25.00.

Copy available to DDC does a permit fully legible reproducts.

Insted		F1(Tective		
	Mo. Day	Tear	Mo.	Day	Yeur
Issued on	der the authority of Or	der No of	the Michigan Public Service Co	minission, Dated	19
Panerel He			Vice President	Milwaukee,	Winconsin
	Sem. 6.	Officer	Title		
		4-76	Wisconsin Mic	higan Power Co	ompany

Cancels First Revised Short No. 10.04

GENERAL SECONDARY SERVICE - PATES C3 1 CONDUCTIONS OF DELIVERY (Continued)

- 6. This rate applies when the company furnishes the entire electric service requirements of a customer. The company will, however, furnish suxiliary service hereunder to a cuntomer who operates his power plant. If the power plant is so operated that all or any portion of the customer's load can be served either from The power plant or from the company's system, the customer shall contract for a demand mutually agreed upon, but in no case less than 5 kilowatts. The customer's dominal shall be metered, and his net monthly bill for auxiliary service shall not be loss than \$2.50 per kilowatt of the highest measured demand in the twelve-month period ending with the current month, or the minimum demand specified in the contract, whichever is the greater. A customer's power plant equipment is defined nu fucluiting steam, internal combustion or hydraulic equipment used to operate electric generators, air compressors, refrigeration equipment, pumps and other abullar equipment. A customer operating electric generating equipment shall not connect It in pacallel with the company's system without the written consent of the company, nor without providing, at his expense, protective and synchronizing equipment satisfactory to the company,
- 7. The company shall not be required to provide service facilities except an specified in paragraph 6 for any customer which are substantially in excess of that required for the customer's regular use.
- 8. Energy furnished under this rate shall not be resold, except as provided in the Electric Service Rules and Regulations of the company.
- 9. Except an provided by contract entered into pursuant to paragraph 6 of these conditions, the company shall not be required to provide service as standby for other types of energy or fuel.
- 10. A customer who regularly uses service for periods of less than one year may pay the monthly minimum charge during the months in which he does not require nervice or, upon his request, service will be disconnected and the customer will be billed a disconnection and reconnection charge of \$25.00 if the company's service facilities are not removed.

Effective Issued under the authority of Order No.... baued Hy. Vice President Milwaukee, Wisconsin Name of Officer Title Address 4-77 Wisconsin Michigan Power Company Rates and Charges

WISCONSIN MICHIGAR FUR AL COMPART

	uncels Pirot Revised Sheet No. 10.08
GENERAL SUCONDARY TOTAL ELECTRIC	: SERVICE - PATE Cg 3
AVAILABILITY To customers contracting for secondary general commercial, industrial, or governmental the sole source of energy for space heati	ital purposes where electricity is un
HOURS OF SERVICE TWENTY-COUR.	
CHARACTER OF SERVICE Alternating current, 60 hertz, single-passivice, or single or three-phase at 240 vol	
RATE	
	Billing Periods
	July-October November-In
Factor Cherica	Not if:
First 1,000 kWn per month or less	\$50.00 \$50
Next 4,000 kWh per month, per kWh	h 4.5¢ 3.
Over 5,000 kWh per month, per kWh	h 3.2¢ 2.
Hublack to adjustment for cost of	fuel. See sheet 15.00, be the energy charge for 1,000 kWh.
Delayed Payment Charge	ne and one-half percent (1.5%) of t credits and adjustments, shall be
TERRITORY	
All areas served in Michigan.	
	usey available to DUC does not parmit fully legible reproduction
Insued Effective	
	bigga Dublic Service Commission, Dated
Issued under the authority of Order Noof the Mich	Nice President Hilvaukee, Wisc

Cancels First Revised

Sheet No. 10.07

CENERAL SECONDARY - TOTAL MLECTRIC SERVICE - RATE CS 3

COMDITIONS OF LELIVERY

- 1. The company will generally turnish single-phase, 60 hertz service at 170/240 votes for lighting; single or three-phase service at 240 volts for power; or 60-cycle, single or three-phase, alternating current network service at 120/208 votes. In accordance with the Electric Service Rules and Regulations of the company coverning utilization. At the customers' request the company may at his option furnish 170/240 vote, single-phase service for combined lighting and power subject to power regulation.
- 2. When lighting service is furnished through one meter and power service through masther, the registrations of the two meters will be added for billing purposes in the meters are installed at the same location. Where separately metered service is furnished for emergency exit lighting, fire alarm system or fire pump purposes the energy used will be accumulated and billed with the regular service provided that it is furnished from the service connection which supplies regular service.
- I. Service under this rate is for general use in commercial, industrial, and governmental establishments, including any group of three or more dwelling mits which are served through one meter and comply with the Electric Service dulas and Regulation: governing resale. When farming and commercial or industrial operations are combined, the applicable rate shall be determined by the predominant use of service.
- 4. At the request of a customer, service will be furnished under this rate at the available primary voltage by special arrangement under which the customer will agree to furnish, own and maintain at his expense all apparatus and material necessary for proper utilization of service at such voltage. In such cases the service will be metered at the supply voltage and the kilowatthours registered will be reduced 3%.
- 5. The company shall not be required to provide service facilities for any enstoner which are substantially in excess of that required for the customer's regular use.
- 6. Energy furnished under this rate shall not be resold, except as provided to the Electric Service Rules and Regulations of the company.

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Rates and Charges

Towned .	Ип	T1 - 2	······································	Effective				
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Issued By		Name of C			Vice P	resIdent	Milwaul	kee, Wisconsin
		HAIDA OL (ilitar.	4-79	Wisc	consin N	Aichigan Po	wer Company

R

WISCONSIN MICHIGAN POWER COMPANY

F. F. S. C. No	1	Second Revised Sheet No. 11.00 Cancels Pirst Revised Sheet No. 11.00
AVACLABILITY	GENERAL PRIMA	RY SERVICE - RATE CP 1
To large p	ower customers contracti ltage for periods of one	ng for service at the available primary or year or more.
HOURS OF SERVICE Twenty-fou		
CHARACTER OF BE Alternation		ce-phase at approximately 4,160 volts or
MATE		
Demand Cha	age per nonth	June-Santamber October-May
First Over	300 kW of billed total	demand or less \$1,450 (100) \$1,200 (100) demand, per NV 4.50 5 (100) 2.75 (100)
Subject	to high-voltage credit.	
Engest Chi	cge per Kilovatt-hour	
All com	LL/A	1.473 1.476 /
Subject	to adjustment for cost	of fuel. See sheet 15.00.
of billed	thly minimum charge shall total demand. When suxi	l be the demand charge for 300 kilovatts liary service is furnished, the minimum- ditions of Delivery, shall also apply.
This to billed and	unt, including applicate if paid after twenty-	tal one and one-hulf percent (1.5%) of the ole credits and adjustments, shall be one days from the date of rendition of
Form No. h		
All areas	served in Michigan.	
anued	Day Year Effe	

lasued By...... Name of Officer

4-80 Wisconsin Michigan Power Company
Rates and Charges

WISCONSIN MICHIGAN POWER COMPANY

4	Third Revised Sheet No. 11.01
1, P. 3, C. Ho	Cancela Second Revised Short No. 11.01
	Cancella Divert 14a
	- RATE Cp 1 (continued)
The rate applies to service furnish distribution voltages of less than 25,00 higher voltages shall receive the follow	
Supply Voltage	Billed Total Demand
Over 25,000	15\$
DETERMINATION OF DEMAND	
used for a period of 15 consecutive as wettween or other standard measuring (b) Measured day demand shall be billing period which in catablished department in writing by the company no house shall be from 7:00 a.m. to 7:00 year. (c) Measured night demand shall billing period which is established definite not designated as day hours. (d) Heasured total demand shall	
Billed demand shall be determined by	
Billed demand Monthly average	demand x 85 yer cent e power factor in per cent
Ellowatt-hours "A" as obtained from	II be calculated from the contaly use of the watt-hour meter and the contaly use of rs "B" as obtained from a matchated reactive rmula:
honthly average power factor = A div	ided by the square root of $(\Lambda^2 + n^2)$
(b) Billed total demand shall paragraph 1(d) above, adjusted for p the contract, whichever is the great	be the measured total demand as provided in over factor, or the minimum specified in er.
βlσ. Uxy Yc∗r	he Michigan Public Service Commission, Dated
Issued By	Vice President Hilwaukee, Wiacons
Name of Officer 4-81	Wisconsin Michigan Power Company Rates and Charges

First Ravised Chart No. 11.02

GENERAL PRIMARY SERVICE - RATE Cp 1

CONDITIONS OF BELIVERY

- 1. The company will furnish three-phase, 60 hertz power service at its most conveniently available primary voltage but in no case less than approximately 4,160 volta, at some one convenient point on the premises of the customer nearest the lines of the company. The supply voltage will depend upon the location of the uncomer and the size and characteristics of his load. A customer receiving service under this rate at more than one voltage shall be billed separately for nervice received at each voltage.
- 2. The customer shall, at his expense, install all apparatus and materials necessary for the proper utilization of the power furnished by the company. All such apparatus shall conform to the Electric Service Rules and Regulations of the company pertaining to primary substation installation and shall at all times beacpt sullable for operation by the power furnished. Any customer receiving service under this rate who requires lighting regulation shall furnish, install, operate and maintain the necessary regulating equipment at his expense.
- 3. The company will furnish auxiliary service under this rate to a customer who operates his power plant. For such service the customer's net minimum yearly bill shall be the greater of the application of the minimum specified in the basic race achedule or \$73.00 per kilovolt-ampere or equivalent kilovolt-ampere output cating of all contours a power plant equipment that supplies load which can be transferred from the customer's to the company's system or the kilovolt-ampere rating of the cuatomer's substation capacity which can serve such loads, whichever is the unvaller. The customer's power plant equipment is defined as including steam, combuntion or hydraulic equipment used to operate electric generators, air compressors, cefrigaration equipment, pumps, and other similar equipment. At the end of each contract year if the net amounts billed by the company for service under the customer's contract have not equaled the net minimum yearly bill for auxiliary service as provided hereunder, then the difference shall be billed by the company and paid by the customer with the regular bill for service for the twelfth month of the contract year.
- 4. A customer operating electric generating equipment shall not connect it In parallel with the company's system without the written consent of the company nor without providing, at customer's expense, protective and synchronizing equipment natinfactory to the company.

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Immed D				Vice	President	Milwauke	e, Wisconsin
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4-82

Wisconsin Michigan Power Company Rates and Charges

Commis Original

Bloma No. 11.03

GENERAL PRIMARY SERVICE - RATE CP X

COMDITIONS OF DELIVERY (Continued)

- 5. This rate provides that 75 per cent of the measured night demand shall be used in determining measured total demand if 75 per cent of the night demand exceeds the day demand. If load conditions permit, the company, at its option, may apply a smaller percentage of the customer's night demand, in which case a written notice to this effect will be issued prior to September 1, to become effective for the twelve months beginning with the following October 1. The night demands of any customers served under this arrangement shall not exceed the capacity of the facilities the company has provided for furnishing the customers normal daytime demands.
- 6. Should the customer, because of fire, strike, casualties, civil or military authority, insurrection or riot, the actions of the elements, or any other like causes beyond his control, be prevented from operating that equipment installed for the utilization of the power service contracted for, the company will waive the monthly minimum demand charge for such period; provided, however, that the period of time of such suspension of use of power shall be added to the period of the contract; and further, provided that the customer notifies the company in writing within six days of his inability to use said power service, pecifying reasons therefor.
- 7. The company shall use reasonable diligence in furnishing an uninterrupted and regular supply of power, but it shall not be liable for interruptions, deficiencies, or imperfections in service, except to the extent of a pro rata reduction of the demand charge provided for herein.
- 8. Service under this rate shall be furnished only in accordance with the Electric Service Rules and Regulations of the company.
- 9. The company whall not be obligated to maintain a service connection for standby or breakdown service under this rate.
- 10. Energy furnished under this rate shall not be resold, except as provided in the Electric Service Rules and Regulations of the company.

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Issued By					Vice President		
		Name of C	Gleve	4-83	Wisconsin Mi Rates and Cha		

RATE "U1" - CITY RESIDENTIAL SERVICE

WHO MAY TAKE SEFVICE:

Any customer for residential purposes.

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

Twenty-four hours daily.

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

\$.0450 per K.W.H. First 50 K.W.H. used per month .0350 per K.W.H. .0270 per K.W.H. Next 50 K.W.H. used per month Next 400 K.W.H. used per month .0215 per K.W.H. Over 500 K.W.H. used per month

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

The minimum monthly charge shall be \$1.50 per meter.

Bills are due on receipt of billing.

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Fegulations.

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Marguette Board of Light and Power 4-84 Replaces:

Rates and Charges

Rate sheet for billings after April 9, 1974

RATE "U2" - CITY RESIDENTIAL ALL ELECTRIC HEATING SERVICE

WHO MAY TAKE SERVICE:

Any City customer for residential purposes, including space heating recuirements, provided that their major electric space heating facilities are permanently installed and are the primary source of space heating.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE :

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

RATE:

First 5	0 K.W.H.	used per	month	Ş	.0450	per	K.W.H.
Next 5	O K.W.H.	used per	month		.0350	per	K.W.H.
Next 40	0 K.W.H.	used per	month		.0270	per	K.W.H.
Over 50	0 K.W.H.	used per	month		.0200	per	K.W.H.

FUEL CLAUSE

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINITHEM CHADCE

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT.

Bills are due on receipt of billing.

CONTRACT:

None required

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Replaces: Rate sheet for billings after April 9, 1974

Marquette Board of Light and Power Rates and Charges

RATE "U3" - CITY GENERAL SERVICE

WHO MAY TAKE SERVICE:

Any customer for commercial or industrial purposes.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE

First	100	K.W.H.	used	per	month	Ş	.0580	per	K.W.H.
Next	400	K.W.H.	used	per	month		.0500	per	K.W.H.
Next	2,500	K.W.H.	used	per	month		.0360	per	K.W.H.
Over	3,000	K.W.H.	used	per	month		.0300	per	K.W.H.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

- (1) Service is governed by the Board of Light and Power's Standard Rules and Regulations.
- (2) Conjunctional Billing will not be permitted in cases where the customer is presently being served lighting and power loads through separate meters. In these instances, whenever the customer at his expense will arrange his wiring to receive energy through one single metered service, then this rate shall apply to his entire requirements.

Effective: For meter billings

beginning Dec. 1, 1974

thru July 31, 1976

Replaces: Rate sheet for billings after April 9, 1974

Marquette Board of Light and Power Rates and Charges 4-86

RATE "U4" - CITY GENERAL SERVICE ALL ELECTRIC HEATING

WHO MAY TAKE SERVICF:

Any City General Service customer who has permanently installed utility approved electric heating equipment as the primary source of space heating.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

First	100	K.W.H.	used	per	month	\$.0580	per	K.W.H.
Next	400	K.W.H.	used	per	month	.0500	per	K.W.H.
Next	2,500	K.W.H.	used	per	month	.0360	per	K.W.H.
Over	3,000	K.W.H.	used	per	month	.0200	per	K.W.H.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

Marquette Board of Light and Power Rates and Charges

Replaces:

beginning December 1, 1974 thru July 31, 1976 Rate sheet for billings after April 9, 1974

RATE "U5" - CITY POWER SERVICE

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 25 kilowatts or more.

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

Twenty-four hours daily.

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

Capacity charge per K.W. of billing demand per month.

First 25 K.W. or less Over 25 K.W. \$ 3.00 per K.W.

Energy charge per K.W.H. per month.

First 1,000 K.W.H. used per month \$.0330 per K.W.H. Next 9,000 K.W.H. used per month .0190 per K.W.H. Over 10,000 K.W.H. used per month .0175 per K.W.H.

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

The capacity charge included in the rate plus energy but not less than \$75.00 per month.

Bills are due on receipt of billing.

Billing demand shall be the maximum 15 minute demand during the month but not less that 25 K.W.

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

beginning December 1, 1974

after April 9, 1974

thru July 31, 1976 Rate sheet for billings

Replaces:

Marquette Board of Light and Power Rates and Charges

RATE "U6" - CITY - LARGE INDUSTRIAL POWER SERVICE

WHO MAY TAKE SERVICE:

Any industrial customer for light and power purposes when the metered demand is 200 kilowatts or more.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz, at standard available voltages.

BATE

Capacity charge per K.W. of billing demand per month.

First 200 K.W. or less \$ 500.00

Over 200 K.W. \$ 2.15 per K.W.

Energy charge per K.W.H. per month.

First 500,000 K.W.H. used per month \$.0170 per K.W.H. Over 500,000 K.W.H. used per month .0160 per K.W.H.

FUEL CLAUSE

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARCE.

The capacity charge included in the rate plus energy but not less than \$500.00 per month.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less that $200\ \text{K.W.}$

CONTRACT

One year or more.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Rate sheet for billings after April 9, 1974

Marquette Board of Light and Power Rates and Charges

Replaces:

II.

RATE - SERVICE TO COLLEGES

WHO MAY TAKE SERVICE:

Any college or university receiving energy through primary metering.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voitages.

RATE .

Capacity charge per K.W. of billing demand per month.

First 200 K.W. or less \$ 600.00

Next 2,800 K.W. \$ 2.63 per K.W. Over 3,000 K.W. \$ 2.40 per K.W.

Energy charge per K.W.H. per month.

First 500,000 K.W.H. used per month \$.0200 per K.W.H. Next 5,500,000 K.W.H. used per month .0190 per K.W.H. Over 6,000,000 K.W.H. used per month .0185 per K.W.H.

FUEL CLAUSE

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$600.00 per month.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 200 K.W.

CONTRACT.

May be required by the Board of Light and Power.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Rate sheet for billings after April 9, 1974

Marquette Board of Light and Power

Rates and Charges

Replaces:

RATE - MUNICIPAL AND SCHOOL SERVICE INCLUDING MUNICIPAL STREET LIGHTING

WHO MAY TAKE SERVICE:

Any municipality, school service, and municipal street lighting.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

\$.0300 per K.W.H. user per month

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective:

For meter billings

Marquette Board of Light and Power Rates and Charges

Replaces:

thru July 31, 1976 Rate sheet for billings after April 9, 1974

beginning December 1, 1974

RATE - MUNICIPAL WATER PUMPING SERVICE

WHO MAY TAKE SERVICE:

The City of Marquette Water Utility for water pumping only.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power in the City Limits of Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

Three-phase, alternating current, 60 hertz at standard available voltages.

\$.0235 per K.W.H. used per month.

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

None required.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings beginning December 1, 1974 thru July 31, 1976 Rate sheet for billings

after April 9, 1974

Marquette Board of Light and Power Replaces: Rates and Charges 4-92

RATE - SENIOR CITIZENS' APARTMENTS -PINE RIDGE APARTMENTS

WHO MAY TAKE SERVICE:

The Senior Citizens' Apartments - Pine Ridge Apartments at 316 Pine Street.

TERRITORY APPLICABLE:

The Senior Citizens' Apartments - Pine Ridge Apartments at 316 Pine Street in Marquette, Michigan.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

\$.0290 per K.W.H. used per month.

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

None required.

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings beginning December 1, 1974 thru July 31, 1976

Marguette Board of Light and Power Rates and Charges

Replaces: Rate sheet for billings after April 9, 1974

RATE - LOW RENT HOUSING SERVICE -LAKE SUPERIOR VILLAGE

WHO MAY TAKE SERVICE:

The Low Rent Housing Project - Lake Superior Village at Longyear Avenue, Marquette, Michigan.

TERRITORY APPLICABLE:

The Low Rent Housing Project - Lake Superior Village at Longyear Avenue in Marquette, Michigan.

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz at 120/240 volts with metering at each transformer location.

\$.0260 per K.W.H. used per month.

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$1.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

None required.

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

Marquette Board of Light and Power Rates and Charges -

Replaces:

beginning December 1, 1974 thru July 31, 1976 Rate sheet for billings after April 9, 1974

RATE "R1" - RURAL RESIDENTIAL SERVICE

WHO MAY TAKE SERVICE:

Any rural customer for residential and general farm purposes.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

First	50	K.W.H.	used	per	month	\$.0700	per	K.W.H.
Next 1	00	K.W.H.	used	per	month	.0350	per	K.W.H.
Next 3	50	K.W.H.	used	per	month	.0300	per	K.W.H.
Over 5	00	K.W.H.	used	per	month	.0280	per	K.W.H.

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

The minimum monthly charge shall be \$2.50 per meter.

Bills are due on receipt of billing.

None, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Replaces:

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Rate sheet for billings after April 9, 1974

Marquette Board of Light and Power Rates and Charges

RATE "R2" - RURAL RESIDENTIAL ALL ELECTRIC HEATING SERVICE

WHO MAY TAKE SERVICE:

Any rural customer for residential and general farm purposes, including space heating requirements, provided that their major electric space heating facilities are premanently installed and are the primary source of space heating.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

Twenty-four hours daily.

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

First	50	K.W.H.	used	per	month	S	.0700	per	K.W.H.
Next	100	K.W.H.	used	per	month		.0350	per	K.W.H.
Next	350	K.W.H.	used	per	month		.0300	per	K.W.H.
Over	500	K.W.H.	used	per	month		.0200	per	K.W.H.

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum monthly charge shall be \$2.50 per meter.

Bills are due on receipt of billing.

None, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective:

For meter billings

Marquette Board of Light and Power Rates and Charges

Replaces:

thru July 31, 1976 Rate sheet for billings

4-96

after April 9, 1974

beginning December 1, 1974

RATE "R3" - RURAL RESIDENTIAL SEASONAL SERVICE

WHO MAY TAKE SERVICE:

Any rural customer for residential seasonal service, such as summer cottages and camps.

TERRITORY APPLICABLE:

All territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120/240 volts.

BILLED ANNUALLY

First	600 1	K.W.H.	used	per	year	\$.0700	per	K.W.H.
Next 1,	200 I	C.W.H.	used	per	year		No.	K.W.H.
Next 4,	200 I	C.W.H.	used	per	year	.0300	per	K.W.H.
Over 6,	000 1	K.W.H.	used	per	year	.0280	per	K.W.H.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE:

The minimum annual charged billed in advance shall be \$30.00 per meter.

TERMS OF PAYMENT:

Bills for electric energy used over the minimum bill are due on receipt of billing, and the advance minimum billing is due within 90 days of receipt of billing.

None, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Rate sheet for billings after April 9, 1974

Marquette Board of Light and Power

Rates and Charges

Replaces: 4-97

RATE "R4" - RURAL GENERAL SERVICE

WHO MAY TAKE SERVICE:

Any rural customer for commercial or industrial purposes.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

First	100	K.W.H.	used per	month	\$.0600	per	K.W.H.
Next	400	K.W.H.	used per	month	.0550	per	K.W.H.
Next	2,500	K.W.H.	used per	month	.0400	per	K.W.H.
Over	3,000	K.W.H.	used per	month	.0320	per	K.W.H.

FILET, CLAUSE

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment. Effective January 1, 1975.

MINIMUM CHARGE

The minimum monthly charge shall be \$2.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

- (1) Service is governed by the Board of Light and Power's Standard Rules and Regulations.
- (2) Conjunctional Billing will not be permitted in cases where the customer is presently being served lighting and power loads through separate meters. In these instances, whenever the customer at his expense will arrange his wiring to receive energy through one single metered service, then this rate shall apply to his entire requirements.

Effective:

or meter billings

Marquette Board of Light and Power

Rates and Charges

Replaces:

thru July 31, 1976 Rate sheet for billings

beginning December 1, 1974

4-98

after April 9, 1974

RATE "R5" - RURAL GENERAL SERVICE ALL ELECTRIC HEATING

WHO MAY TAKE SERVICE:

Any Rural General Service customer who has permanetly installed utility approved electric heating equipment as the primary source of space heating.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

First	100	K.W.H.	used	per	month	\$.0600	per	K.W.H.
Next	400	K.W.H.	used	per	month	.0550	per	K.W.H.
Next	2,500	K.W.H.	used	per	month	.0400	per	K.W.H.
Over	3,000	K.W.H.	used	per	month	.0200	per	K.W.H.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

The minimum monthly charge shall be \$2.50 per meter.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

CONTRACT:

None required, except as provided for in rules and regulations governing extensions.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Replaces: Rate sheet for billings after April 9, 1974

Marquette Board of Light and Power Rates and Charges

4 00 Re

RATE "R6" - RURAL POWER SERVICE

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 25 kilowatts or more.

TERRITORY APPLICABLE:

All rural territory served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Single or three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Capacity charge per K.W. of billing demand per month. First 25 K.W. or less \$ 3.00 per K.W. Over 25 K.W.

Energy charge per K.W.H. per month.

First 1,000 K.W.H. used per month \$.0350 per K.W.H. Next 9,000 K.W.H. used per month .0200 per K.W.H. Over 10,000 K.W.H. used per month .0190 per K.W.H.

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

The capacity charge included in the rate plus energy but not less than \$75.00 per month.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less that 25 K.W.

CONTRACT:

One year or more.

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Rate sheet for billings

Rates and Charges Replaces:

Marquette Board of Light and Power

4-100

after April 9, 1974

RATE "R7" - SERVICE TO OTHER ELECTRIC UTILITIES

WHO MAY TAKE SERVICE:

Any Electric Utility engaged in the business of distributing electricity for Resale.

TERRITORY APPLICABLE:

Any location agreed to be served by the Board of Light and Power.

HOURS OF SERVICE:

Twenty-four hours daily.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz, at standard available voltages.

RATE:

Capacity charge per KW of billing demand per month.

All K.W.

\$ 2.10 per K.W.

Energy charge per K.W.H. per month.

All K.W.H. used per month \$.0160 per K.W.H.

FUEL CLAUSE:

This rate is subject to the Board of Light and Power's Standard Fuel Clause Adjustment.

MINIMUM CHARGE:

As specified in Contract.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month.

CONTRACT:

One year or more.

RULES APPLYING:

Service is governed by the Board of Light and Power's Standard Rules and Regulations.

Effective: For meter billings

beginning December 1, 1974

thru July 31, 1976

Replaces: Rate sheet for billings after April 9, 1974

Marquette Board of Light and Power Rates and Charges

RATE "CL" - "RL" - DUSK TO DAWN OUTDOOR SECURITY LIGHTING

WHO MAY TAKE SERVICE:

Any customer for dusk to dawn outdoor security lighting where customer takes service at the same premises under a standard rate schedule.

All territory served by the Board of Light and Power.

HOURS OF SERVICE:

Daily from dusk to dawn.

CHARACTER OF SERVICE:

Single-phase, alternating current, 60 hertz, nominally at 120 volts.

RATES:

						1 - 9 Lights	10 of More Lights
						MONTHLY CHARGE	MONTHLY CHARGE
175	Watt	Mercury	Vapor/	Per	Light	\$ 4.43	\$ 4.18
400	Watt	Mercury	Vapor/	Per	Light	\$ 8.36	\$ 8.11

Each lighting unit shall consist of a mast mounted mercury vapor light fixture installed, owned, operated, and maintained by the Board of Light and Power.

TERMS OF PAYMENT:

Bills are due on receipt of billing.

May be required by the Board of Light and Power.

- (1) Service is governed by the Board of Light and Power's Standard Rules and Regulations.
- (2) Board of Light and Power will provide normal maintenance to the lighting unit including the fixture, lamp, ballast, photoelectric control, mounting brackets and all necessary wiring. The Board of Light and Power will furnish all electric energy required for operation of the unit.
- (3) Normal lamp replacement shall be the responsibility of the Board of Light and Power.
- (4) Damages to fixture, lamp, ballast, photo-electric control, mounting brackets by vandalism or malicious mischief shall be at the customer's expense.
- (5) For service under this schedule, installation of the unit must be on an existing utility pole upon which the Board of Light and Power's secondary lines are already attached or on the customer's own pole approved by the Board of Light and Power.
- (6) The Board of Light and Power will installed a pole for the dusk to dawn light with costs based on present pole costs to be paid by the customer.

Effective: For billings beginning December 1, 1974 thru July 31, 1976 Rate sheet for billings

after September 27, 1973

Marquette Board of Light and Power Rates and Charges

Replaces:

FUEL CLAUSE ADJUSTMENT

Whenever the weighted average cost of fuel at the Shiras Steam Plant is greater or less than 60.118 cents per million BTU, there shall be added or deducted, as the case may be, per kilowatt hour for each 1/100 of a mill of such increase or decrease in the price per million BTU at the heat rate of the Shiras Steam Plant (13,500 BTU/KW) converted into cents per kilowatt hours.

At the above heat rate of the Shiras Steam Plant, the cost of energy per kilowatt hour will vary with each 1/100 of a mill change in cost per million BTU above or below 60.118 cents multiplied by .0000135 cents.

The above tuel adjustments will be calculated at six month intervals, (January 1st and July 1st), to the above formula. The fuel adjustment will be applied to the following rate classifications:

RATE "U1" - CITY RESIDENTIAL SERVICE

RATE "U2" - CITY RESIDENTIAL ALL ELECTRIC HEATING SERVICE

RATE "U3" - CITY GENERAL SERVICE

RATE "U4" - CITY GENERAL SERVICE ALL ELECTRIC HEATING

RATE "U5" - CITY POWER SERVICE

RATE "U6" - CITY LARGE INDUSTRIAL POWER SERVICE

RATE "U7" - SERVICE TO COLLEGES

RATE "MU" - MUNICIPAL AND SCHOOL SERVICE INCLUDING MUNICIPAL STREET LIGHTING

RATE "WP" - MUNICIPAL MATER PUMPING SERVICE

RATE "U8" - SENIOR CITIZENS' APARTMENTS - PINE RIDGE APARTMENTS

RATE "U9" - LOW RENT HOUSING SERVICE - LAKE SUPERIOR VILLAGE

RATE "R1" - RURAL RESIDENTIAL SERVICE

RATE "R2" - RURAL RESIDENTIAL ALL ELECTRIC HEATING SERVICE

RATE "R3" - RURAL RESIDENTIAL SEASONAL SERVICE

RATE "R4" - RURAL GENERAL SERVICE

RATE "R5" - RURAL GENERAL SERVICE ALL ELECTRIC HEATING

RATE "16" - RURAL POWER SERVICE

RATE "R7" - SERVICE TO OTHER ELECTRIC UTILITIES

Marquette Board of Light and Power Rates and Charges

Effective: For meter billings beginning January 1, 1975 Replaces: Rate sheet for billings after April 9, 1974

FUEL CLAUSE ADJUSTMENT

Billing Period July thru December 1975

Base Year Price (per million BTU)		60.118	¢
Adjustment Period Price (per million BTU)		78.752	¢
ADJUSTMENT (Difference)	****	18.634	¢
X Heat Rate Adjustment (per 1/100th of a mill)	X	.0000135	¢
FUEL CLAUSE ADJUSTMENT PER KILOWATT HOUR		\$.00252	

Adjustment Period_	January thru June		Ca	
1	Cost	oal Tons	Cost	Cubic Feet
Jauary	161,436.75	8,845.70	0.00	0
February	152,031,33	8,148.65	0.00	0
M ch	166,148.18	8,803.45	566.60	1,190,000
April	142,244.07	7,923.25	3,114.61	6,420,000
May	- 17,242.49 84,517.70	- 1,000.00 4,584.60	25,087.65	44,590,000
Ji e	92,221.30	4,338.25	35,564.56	54,940,000
July		4		
Ac ust				
Sentember				
October				
No e er				
December				
10 ILS	\$ 781,356.84	41,643.90	\$ 64,333.42	107,140,000
(2 000		X 2,000		
(EU's per 1b./cu	.ft.			
OTAL BTU's		966,721,494,600		107,140,000,000
os Per Million B	TU	80.825 ¢		60.046 ¢
ot 1 Coal Cost		781,356.84		
otal Gas Cost		64,333.42		
RAND TOTAL			\$ 845,690.26	
ot BTU's (Coal)		966,721,494,600		
otal U's (Gas)		107,140,000,000		
RAT TOTAL BTU'S			1,073,861,494,600	
/ERAGE BTU COST (p	per million)		78.752 ¢	-4
Ma Rat	rquette Board of Lic es and Charges	tht and Power 4-105		

M.P.S.C. No. 1
The Ontonagon County Rural Electrification
Association
Ontonagon, Michigan
Car

Third Revised Sheet No. 11.00 Cancels Second Revised Sheet No. 11.00

SCHEDULE B

COMMERCIAL, SMALL POWER AND THREE-PHASE FARM SERVICE

AVAILABILITY:

Available in all territory served by the Association, subject to the Association's established Service Rules and Regulations.

APPLICABILITY:

Applicable to commercial, small power and three-phase farm service.

TYPE OF SERVICE:

Single-phase or three-phase, 60 cycles, at available secondary voltages.

RATE:

Service charge

\$4.10 per customer per month

Energy charge

First 500 kwh's @ 5.0c per kwh Over 500 kwh's @ 4.5c per kwh

Demand charge

First 10 kilowatts of billing demand per month, no demand charge Excess above 10 kilowatts of billing demand per month @ \$3.50 per kilowatt.

DETERMINATION OF BILLING DEMAND:

The billing demand shall be the maximum kilowatt demand established by the consumer for any period of fifteen consecutive minutes during the month for which the bill is rendered, as indicated or recorded by a demand meter and adjusted for power factor as provided below.

Continued to Third Revised Sheet No. 11.01

Lssued: June 23, 1975 Effective: June 25, 1975

Lssued under the authority of Order of the Michigan Public Service Commission
Dated June 23, 1975 in Case No. U-4783

Issued By: William J. Chabot, Manager 4-106

Ontonagon, Michigan Ontonagon County Rural Electrification Assn. Rates and Charges M.P.S.C. No. 1 The Ontonagon County Rural Electrification Association Ontonagon, Michigan

Third Revised Sheet No. 11.01 Cancels Second Revised Sheet No. 11.01

SCHEDULE B

COMMERCIAL, SMALL POWER AND THREE-PHASE FARM SERVICE

POWER FACTOR:

The consumer agrees to maintain unity power factor as nearly as possible. Power factor may be measured at any time. Should such measurements indicate that the power factor at the time of his maximum demand is less than 85 percent the demand for billing purposes shall be the demand as indicated or recorded by the demand meter, multiplied by 85 percent and divided by the percent power factor.

MINIMUM MONTHLY CHARGE:

The minimum monthly charge shall be \$4.10 for single-phase service and \$10.00 for three-phase service.

SALES TAX:

Michigan State Sales Tax will be added where applicable.

TERMS OF PAYMENT:

Bills are rendered net with payment due 21 days from date of bill.

FUEL COST ADJUSTMENT CHARGE:

This rate is subject to the Association's standard system fuel adjustment on Sheet No. 14.00.

Issued: June 23, 1975 Effective: June 25, 1975

Issued under the authority of Order of the Michigan Public Service Commission Dated June 23, 1975 in Case No. U-4783

Issued By: William J. Chabot, Manager
4-107 Ontonagon County Rural Electrification Assn
Rates and Charges

SCHEDULE LP

LARGE POWER SERVICE

AVAILABILITY:

Available to consumers located on or near Seller's three-phase lines for all types of usage, subject to the established rules and regulations of Sellers.

RATE:

\$3.75 per month per kw of billing demand plus energy charges of First 1000 kwh per month @ 4.5¢ per kwh Next 9000 kwh per month @ 3.5¢ per kwh

Over 10000 kwh per month @ 2.0c per kwh

DETERMINATION OF BILLING DEMAND:

The billing demand shall be the maximum kilowatt demand established by the consumer for any period fifteen consecutive minutes during the month for which the bill is rendered, as indicated or recorded by a demand meter and adjusted for power factor as follows:

POWER FACTOR ADJUSTMENT:

The consumer agrees to maintain unity power factor as nearly practicable. Demand charges will be adjusted for consumers with 50 kw or more of measured demand to correct for average power factors lower than 90%, and may be so adjusted for other consumers if and when the seller deems necessary. Such adjustments will be made by increasing the measured demand 1% for each 1% by which the average power factor is less than 90% lagging.

FUEL COST ADJUSTMENT CHARGE:

This rate is subject to the Association's standard system fuel adjustment on Sheet No. 14.00.

Continued to Second Revised Sheet No. 12.01

Issued: June 23, 1975 Effective: June 25, 1975
Issued under the authority of Order of the Michigan Public Service Commission
Dated June 23, 1975 in Case No. U-4783

Issued By: William J. Chabot, Manager

Ontonagon, Michigan Ontonagon County Rural Electrification Assn. Rates and Charges

Second Revised Sheet No. 12.01 Cancels First Revised Sheet No. 12.01

SCHEDULE LP

LA) GE POWER SERVICE (continued)

MINIMUM MONTHLY CHARGE:

The minimum monthly charge shall be the <u>highest</u> one of the following charges as determined for the consumer in question.

- (1) The minimum monthly charge specified in the contract for service.
- (2) A charge of \$0.75 per KVA of installed transformer capacity.
- (3) A charge of \$40.00

MINIMUM ANNUAL CHARGE FOR SEASONAL SERVICE:

Consumers requiring service only during certain season not exceeding 9 months per year may guarantee a minimum annual charge, in which case there shall be no minimum monthly charge. The minimum annual charge shall be sufficient to assure adequate compensation for the facilities installed to serve the consumer, and in no event shall it be less than \$9.00 per KVA of installed transformer capacity, or \$300, whichever is greater.

TYPE OF SERVICE:

Three-phase, 60 cycle, at Seller's standard voltages.

SERVICE PROVISIONS:

- 1. Delivery point. If service is furnished at secondary voltage the delivery point shall be the metering point unless otherwise specified in the contract for service.

 All wiring, pole lines and other electric equipment on the delivery point shall be owned and maintained by the consumer.
- 2. If service is furnished at Seller's primary line voltage the delivery point shall be the point of attachment of Seller's primary line to consumers transformer structure unless otherwise specified in the contract for service. All wiring, pole lines and other electric equipment (except metering equipment) on the load side of the delivery point shall be owned and maintained by the consumer.

Continued to Second Revised Sheet No. 12.02

Issued: June 23, 1975 Effective: June 25, 1975
Issued under the authority of Order of the Michigan Public Service Commission
Dated June 23, 1975 in Case no. U-4783

Issued By: William J. Chabot, Manager

Ontonagon, Michigan Ontonagon County Rural Electrification Assn Rates and Charges

SCHEDULE LP

LARGE POWER SERVICE

(continued)

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- 3. <u>Lighting</u>. Both power and lighting shall be billed at the foregoing rate. If a separate meter is required for the lighting circuit, the registrations of the two watt-hour meters shall be added to obtain total kilowatt-hours used and the registrations of the two demand meters shall be added to obtain the total kilowatt demand for billing purposes.
- 4. Primary Service. If service is furnished at primary distribution voltage, a discount of seven percent shall apply to the demand and energy charges, and if the minimum charge is based on transformers capacity, a discount of seven percent shall also apply to the minimum charge. However, the Seller shall have the option of metering at secondary voltage and adding the estimated transformer losses to the metered kilowatt-hours and kilowatt demand.

TERMS OF PAYMENT:

Bills are rendered net with payment due 21 days from date of bill.

Issued: June 23, 1975 Effective: June 25, 1975
Issued under the authority of Order of the Michigan Public Service Commission,
Dated June 23, 1975 in Case No. U-4783

Issued By: William J. Chabot, Manager
Ontonagon, Michigan
Ontonagon County Rural Electrification Assn
Rates and Charges

ALGER DELTA CO-OP

WHOLESALE RATES

Wisconsin Michigan Power Company

Current Rate

First	180	hours*	.0185	per KWH
Next	270	hours*	.0150	per KWH
Over	450	hours*	.0120	per KWH

^{*} Hours use of maximum demand per month.

Rate Approved by PSC

First	180	hours*	.0180	per	KWH
Next	270	hours	.0145	per	KWH
Over	450	hours	.0113	per	KWH

New Proposed Rate

Monthly connection charge	
per Point of Delivery	\$250.00
Demand charge	\$6.70 per KW
Energy charge per month	.942¢ per KWH
Plus fuel charge	
Sen attachment	

Current Fuel Charge - approximately \$.0023 per KWH

Marquette Board of Power & Light

Current Rate

Demand charge \$2.10 per maximum monthly KW Energy charge \$.016 per KWH Fuel adjustment \$.00252 per KWH

Upper Peninsula Power Company

Current

Demand charge \$2.75 per maximum monthly KW Energy charge \$.0172 per KWH Present fuel cost \$.00870 per KWH

> Alger-Delta Cooperative Electrical Assn 4-111 Rates and Charges

CRYSTAL FALLS ELECTRIC AND WATER DEPARTMENTS Crystal Falls, Michigan SCHEDULE OF RATES

Residential

First 35 kwh @ 6¢ per kwh
Next 50 kwh @ 4¢ per kwh
Over 85 kwh @ 3¢ per kwh
\$2.50 minimum
Discount of 10% on residential electricity

Commercial

First	500	kwh			\$	2.50
Next	150	kwh	@	5¢	per	kwh
Next	300	kwh	(0)	4 1/2¢	per	kwh
Next	500	kwh	(a)	4¢	per	kwh
Next	1,000	kwh	@	3 1/2¢	per	kwh
Over	2,000	kwh	@	3¢	per	kwh

Rate for Electric Water Heating Coverned by Time Clock

3¢ per kwh \$2.50 minimum

Industrial

Customers using 20,000 kwh per month or more consistently $2.25 \$ per kwh Plus demand as measured.

Dusk to Dawn Lighting - \$4.50 per month

Water Meter Rates (per month)

	OTLY	IWP.
First 7,000 cu.ft. per 100 cu.ft	. 24¢	27¢
Next 7,000 cu.ft. per 100 cu.ft	. 21¢	24¢
Next 7,000 cu.ft. per 100 cu.ft	. 18¢	21¢
Over 21,000 cu.ft. per 100 cu.ft	. 15¢	15¢
Minimum charge per month -		
5/8" & $3/4$ " meter = \$2.0	0	

5/8" & 3/4" meter = \$2.00 1" meter = 3.00 2" meter = 7.50 3" meter = 15.00 4" meter = 22.50

Crystal Falls Electric and Water Depts. Rates and Charges

Crystal Falls Electric and Water Departments Schedule of Rates - Cont'd.

Water Flat Rates

City - \$2.00 per month Twp - \$2.35 per month

Sewer Flat Rates

\$2.00 per month

Sewer - Metered

100% of First \$10.00 Water Bill 50% of Next \$10.00 Water Bill 25% of Balance of Water Bill

A penalty of 10% will be charged to all accounts paid after the 20th of the month.

U.P.S.C. No. 5 UPPER PENINSULA POWER COMPANY Houghton, Michigan

Fourth Revised Sheet No. 15.0 Cancels Third Revised Sheet No. 15.0

RATE "WP-1" - LARGE LIGHT AND POWER

WHO MAY TAKE SERVICE:

Any customer for light and power purposes when the metered demand is 200 kilowatts or more.

TERRITORY APPLICABLE:

All territory served in the Company's interconnected system.

CHARACTER OF SERVICE:

Three-phase, alternating current, 60 hertz at standard available voltages.

RATE:

Capacity charge per kw of billing demand per month.

First 200 kw or less \$1,200.00 Next 2,800 kw 5.10 5.10 per kw Over 3,000 kw 4.75 per kw

Energy charge per kwh per month.

First 500,000 kwh 1.50¢ per kwh Next 5,500,000 kwh 1.40¢ per kwh Over 6,000,000 kwh 1.35¢ per kwh

MINIMUM CHARGE:

The capacity charge included in the rate plus energy but not less than \$1,200.00.

TERMS OF PAYMENT:

Customers will be billed at gross rates which are 3% in excess of the above charges. The net amount is applicable for payment within 21 days from the date of bill.

DETERMINATION OF BILLING DEMAND:

Billing demand shall be the maximum 15 minute demand during the month but not less than 200 kw.

ADJUSTMENT OF OFF-PEAK HOURS:

Demands created during off-peak hours may, at the option of qualifying customers, be adjusted as provided in Off-Peak Service Rule 18.

CONTRACT:

One year or more.

Issued:	Effective:	For service rendered on and
Issued under the authority dated	Order of Michigan Put	after olic Service Commission.

U.P.S.C. No. 5 UPPER PENINSULA POWER COMPANY Houghton, Michigan

First Revised Sheet No. 15.1 Cancels Original Sheet No. 15.1

RATE "WP-1" - LARGE LIGHT AND POWER

FUEL CLAUSE: (Continued)
This rate is subject to the Company's Standard interconnected system for adjustment.

APPLYING:

Service is governed by the Company's Standard Rules and Regulations.

Issued:	Effective:	For service rendered on and
ssued under the authority of	Order of Michigan Pub	after
lated	In Case No.	Nic Service Commission.



